

पुरेन्द्रित पुस्तकालय
रन्धना विद्यार्थी

निर्माणांक.....
पुस्तकांक.....
पं० क्रमांक.....

PEN AND PENCIL

. IN

ASIA MINOR;

OR,

NOTES FROM THE LEVANT.

BY

WILLIAM COCHRAN,

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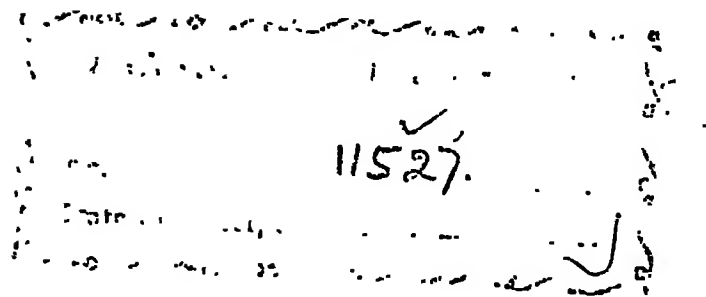
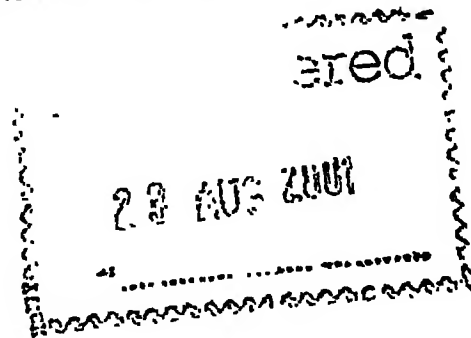
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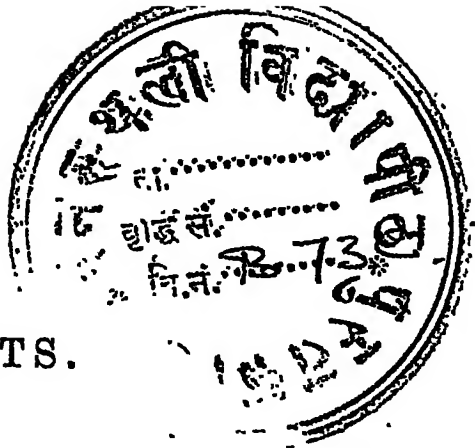
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CONTENTS.

LIST OF THE ILLUSTRATIONS	PAGE xiv
PROLOGUE, DEALING WITH THE PERIOD BETWEEN 1864 AND 1885..	xvii

CHAPTER I.

Liverpool to Gibraltar.—Mediterranean routes—Start from Liverpool—The docks—Breakfast on board—The passengers—Off Holyhead—Skerry rocks—Gaps at the dinner-table—Neptune claims tribute—Uproar on deck—General suffering below—Gradual recovery—Bay of Biscay passed—Accident to a clergyman—Portuguese coast—Cintra and Cape Rocco—Mouth of the Tagus—Spanish mountains—Strait of Gibraltar—Political squabble in the saloon—Off to bed Pages 1 to 12

CHAPTER II.

Gibraltar to Malta.—Magnificent sunrise—Literary fever—Our rhymster—Our “Ancient Mariner”—Granada and Almeria mountains—Sierra Nevadas peaks—Malaga—Cape Gata—Algeria—Town of Oran—Another exquisite sunrise—Mountains of Algeria—“Tail end of a sirocco”—Gulf of Tunis—Galita islands—Pantellaria island—The “Ancient Mariner” on cuddies an’ grapes—Divine service—Glimpses of Sicily—Mount Etna—Speed of steamer reduced—Literary activity—Malta at early morn’—Scene from the deck—Grand Harbour—Fort St. Angelo—Difficulties on landing—Valetta—Strada Santa Lucia, or street of steps—Priests everywhere—The Governor’s Palace—Church of St. John—Priestly intolerance—The forts—Our departure Pages 13 to 31

CHAPTER III.

Malta to Syra and Smyrna.—Injured clergyman left at Malta—Cape Matapan—Coast of Greece—Mount Elias—Imposing landscape—Fog—Speed reduced—Stoppage—Island of Cerigo, birth-place of Venus—

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Lacedæmonia—Cervi—Cape Malea—Distant view of Candia—Hermit's hut and chapel—Melos—Seriphos—Siphnos—Serpho Poulou—Karavi—Belo Poulou—Falconera—Island of Syra—Sights of Syra—Churches and flowers—Torturing an octopus—School attendance—Great men of Syra—Departure—Gulf of Smyrna—Mimas peak—Sunrise in the gulf—The Turkish fort Sanjak Kalissi—Fertile peninsula—Agamemnon's Baths—First glimpse of Smyrna—Termination of the voyage
Pages 32 to 46

CHAPTER IV.

Preliminaries of the Silk Harvest.—Hospitably entertained—Made a member of Greek and European clubs—Object of visit—Mr. John Griffitt of Bournabat—His sericultural efforts—Regenerated eggs—Beginning of season's distribution of eggs—Hagelar village—Pictures of the peasantry—Anxiety to get eggs—Their homes, splendours, and hospitality—A false family—Musical names and language—Change of scene to Magnesia—Distinguished travelling companions—Scenes on the railway—Magnesia—Statue de Cybele, or Niobe—An impostor defeated—Village of Chobanissa—Camel encampment—Sardis
Pages 47 to 61

CHAPTER V.

The Mulberry.—Varieties—*Morus alba* the best for silkworms—Mistaken views in America and elsewhere—Merits and demerits of other kinds—Feeding for colour—Chief silk-producing countries—Management of seedlings in France—Plantations—Captain Mason of Yateley, Hampshire, an authority on silk-farming—Fortune's silk experiences in China—Schuyler's experiences in Turkestan—Mr. John Griffitt's experience in Asia Minor—Seedlings, cuttings, and layering—Pruning the *morus alba*—Scarcity of leaves not common in China—Plantations isolated from *magnaneries*—Scene in China during leaf harvest—Partial leaf-famine at Bournabat—Plan for tiding over a scarcity of mulberry leaves—Ensilage of leaves Pages 62 to 74

CHAPTER VI.

Graine Distribution.—At Bournabat—Rush of the peasantry to obtain regenerated eggs—Scenes at the distribution—Greek, Turkish, French and English, all being spoken at once—Cross-examination to prevent imposture—Applicants kept in check by one another—A twelve-miles' drive—Little military station—Black Turkish coffee without sugar—Approach to Nymphio—Ruined palace of Andronicus' the younger—Cherry orchards gay with blossom—Prancing up the main street of Nymphio—Eager crowd waiting for silkworms' eggs—Distribution

CONTENTS.

v

from the house of a vineyard-owner—Premature hatching—Spend the night at Nymphio—The village doctor—Scene with a suspicious old lady next morning—Surroundings of the town—A ride into the brigand region—Turkish military escort—Scenes by the way—Rock-hewn bas-relief of Rameses II., commonly called Sesostris, believed to be the oldest piece of carving in the world—Sketching under the protection of four loaded rifles—Wretched roads—Return

Pages 75 to 85

CHAPTER VII.

The Nursery and its Appliances.—Mr. Griffitt's observations—Tribute to M. Louis Pasteur—Nurseries should be airy and clean—Hints as to educations—Ventilation and heating—Suggestions as to stoves—The incubator—Thermometer and hygrometer—Leaf cutter—Pierced papers and their advantages—Stands and frames—The microscope—The cocoon-steamer Pages 86 to 97

CHAPTER VIII.

Turkey Carpets.—Probable origin of the carpet—Were made in Asia Minor before Homer's time—Very ancient industry in India and Africa—In Britain and France—Dutch carpet loom—Duke of Cumberland, an encourager of the industry—About Turkey carpets—Oushak Ghiordes and Koula, places of manufacture—Something about Oushak—Its inaccessibility—Carpets brought to railway station eighty miles on camel-back—European machinery tried and abandoned—Particulars of spinning, dyeing, and manufacture—Novelties not appreciated by the weavers—Story about a carpet—The Messrs. Griffitt of Smyrna
Pages 98 to 106

CHAPTER IX.

Educating the Silkworm.—Mr. John Griffitt's experiences—Decline of sericulture in Turkey—Regeneration of silkworms—Preparing for incubation—Feeding—Disposal of the young worms at different elevations—Give abundance of space—Feed with dry leaves—Perfect cleanliness required—The critical age—Use disinfectants, and give fresh air—Incubating in France and Italy—Moulting periods—Quantities of food devoured—Italian estimates—Maturity hastened by heat—Chinese ideas—Debernardi on feeding—Miss Bird's observations in Japan—Explanation of seeming incongruities—Mr. Griffitt on incubation—On the various ages, and how the sericulturist should act—On periods of feeding—On the moultings—Total food consumption—On mounting to spin—Gathering the cocoons—Separating the perfect cocoons for *graine*—Steaming Pages 107 to 131

CHAPTER X.

Greek Institutions of Smyrna.—Anniversary of assertion of Greek independence—Patriotic displays—Estimate of the population—Reason for Greek increase—Facts about Greece—King George—The Greek prelates in Smyrna, Archbishop Basilius and Bishop Athanasius Kyrilos—Story of the latter—Celebration of Easter—A midnight orgie—The Greek Hospital—Greek munificence to their institutions—Eagerness for education—Greek veneration for Mr. Gladstone—Greek pride in Lord Cochran—Items in the Cochran genealogy—Rev. Mr. Hill and Mrs. Hill of Athens—Story of two American missionaries and a little Greek maiden—Rev. Mr. Hill's educational triumphs

Pages 132 to 146

CHAPTER XI.

Mysteries of Reproduction.—Selecting the cocoons—Discriminative examination for sex—Stringing the cocoons for reproduction—Issue of the moths—Difference in appearance between the sexes—Coupling the moths—Laying eggs on inclined surfaces—An exception in the Bagdad moth—Caution against contamination—Removing the eggs—Preserving the *graine*—Consignment of *graine*—Pasteur's cellular system—Method of producing cellular *graine*—Mr. Griffitt's invigorating practice—Twelve rules for sericulturists ..

Pages 147 to 164

CHAPTER XII.

Three Turkish Institutions.—Smyrna—Turkey improving—Hospitality—The konak—Barracks—The Hospital—Achmet Kiazim Effendi—Merits of the Hospital—A suggested improvement—The Hospital gardens—The Industrial School for Orphan Boys—Yousuf Zia Effendi—Scenes inside the institution—The School of Commerce and Agriculture—Mehemed Noury Bey

Pages 165 to 173

CHAPTER XIII.

Diseases of the Silkworm.—Rapid progress of, in France—Beginning of the industry there—Climax of its prosperity—Diagram of silk harvests from 1821 to 1881—Decadence—*Pébrine* in Lombardy—The hunt for undiseased eggs—Every country smitten, except Japan—A wail of anguish from France—Pasteur employed—His success in probing the secrets of disease—*Flacherie* in France—Pasteur's microscope the conqueror—Something about *pébrine*—Experiments—Proved to be both hereditary and contagious—Method of detection—Chinese ideas on the subject—Precautions formerly taken in France—Anecdote of Arles—No known cure for *pébrine*, but it can be warded off—*Flacherie*

—Pasteur's researches—Microscope again employed—Lady Claud Hamilton's translation of Pasteur's labours recommended—Mr. John Griffitt on *flacherie*—Is an accidental, but contagious disease—His experiments—Lessons inculcated—Pasteur's views summarised—Causes of *flacherie*—Dissection of the chrysalis and explanation—Tests for detecting the disease—*Muscardine*—Its symptoms—Is owing to a parasitic plant—Cause and prevention .. Pages 174 to 198

CHAPTER XIV.

Use of the Microscope in Sericulture.—Early history of the instrument—Microscope recommended—Method of procedure—An examination for *pébrine*—Difference between corpuscles and fat globules—Observations should be registered—Method of counting the corpuscles on a disc—Inspecting for reproduction—Pasteur's advice to silk-farmers—Care and cleanliness of the apparatus Pages 199 to 208

CHAPTER XV.

Agriculture around Smyrna.—The Scottish farmer—Features of Asia Minor—Vilayet of Aidin—The soil—Its products—German vineyards near Koukloudjah—Mr. Griffitt of Bournabat—Statistics by His Excellency Hussein Hilmi Effendi—His Excellency Kemal Bey, governor of Rhodes—Means of irrigation—Halka Bounar, or Diana's Bath—Fountains of Nymphio—Field labour—Vagabonds from Greek islands—Ionian cultivators—Amusing letter of a pauper—The mendicant element—Cost of labour—Value of land—Vine a source of wealth—Turkish money—Brigandage curbed by the late governor, His Excellency Hadji Nachid Pasha—Advance in land value at Chobanissa—Defiance of a landowner by Greeks—Advantages to agriculturists in the vilayet of Aidin Pages 209 to 221

CHAPTER XVI.

Fraudulent Insurers in Smyrna.—An Italian apophthegm—The three scourges of the Levant—Midnight fires—Inflammability of the generality of the native buildings—The slinking incendiary—Enthusiasm for insuring—Losses far exceed the premiums—Difficulty of knowing the honest man from the rascal—Few fires where not insured—Houses bought to be burnt—Native doctor arrested for fire-raising and condemned—Efficient fire-brigade maintained solely by British insurance companies—Precautions against fire—Curious marine insurance dispute—An impudent claim by a Smyrna shopkeeper—Three shelves of a store magnified into three floors of a warehouse—A consular court wigged by a Constantinople judge Pages 222 to 229

CONTENTS.

CHAPTER XVII.

The Smyrna and Aidin Railway.—Introduction—Features of first twenty miles—Stations open to all loafers and beggars—Haunts for the thirsty, and hunting-grounds for pedlars—Ruins of Metropolis near Turbali—Gallessium mountains—M. Fontrier—Pegasæan lake—Kelchie Kaieh—Legend—River Cayster—Ayasouluk, the station for Ephesus—Remains of aqueduct—Stork's nests—A feverish locality—The Byzantine castle—Mr. Woods, a former excavator at Ephesus—Region of bloom and floral splendour—Train slides down an incline of eight miles, with wheels in iron shoes—The fig country—Azizieh—Windings of the Mæander—Ruins of Magnesia—River Lethe—Poppies grown for opium—Aidin a good market—Omurlu—Kiosk—Figs, olives, and vines everywhere—Valonia oak at Chifte Kiosk—Sultan Ilissar, the birth-place of Strabo—Atche and Nazli—Kuyujak—Horsunlee, beyond the fruit region—Barley everywhere—Mount Cadmus—Seraikeuy, the present terminus of the line—Absence, except at one place, of modern agricultural machinery—Get lodgings in a house belonging to the railway company Pages 230 to 241

CHAPTER XVIII.

Hierapolis and Laodicea.—Seraikeuy village—Fare provided without notice by the Greek landlady—House clean and comfortable—No nocturnal insects—Awakened before dawn by the crowing of countless cocks, and braying of innumerable donkeys—We prepare to ride forth, a party of six—Incidents by the way—Colony of Bulgarians—Ruins of Hierapolis, much exaggerated as to splendour—Rifled tombs—Violated sarcophagi—Solid marble lake—Impressiveness of the scene—Plateau seemingly carved out of the side of the Messogis mountains—The white terraces—Cascades—A weird, wild landscape, difficult to describe—The hot pool—Theatre—Traces of the destructive Goth—Mutilated marble frieze—View from the theatre—The colonnade—The gymnasium—The hot-water conduits—Vast extent of the lime incrustations—Ground much fissured by earthquakes—Tribe of Turkoman nomads—Offer scraps of worthless potsherds—Not dangerous, but unsavoury—Hot pool inviting for a bath—Oleanders and blossoming pomegranates around—Ride resumed to north-west—Laodicea—Utter desolation—Broken or empty sarcophagi tumbled about all over the hill of approach—Fields of barley, and reapers at work—Discovery of a Greek inscription—The return Pages 242 to 256

CHAPTER XIX.

The Bournabat Silk Harvest of 1885.—Unprecedented success—Smyrna formerly a silk-producer—Extinction of the industry—Mr. Griffitt's efforts at revival—Distribution of eggs—Terms of distribution—Partnership arrangements—Average educations—Breeds of silkworm—Their regeneration—Silk for fishing-nets—Story of a yellow race—The hybrid race—Nun, or negro worms—Weights of the four races—Beginning of an incubation—Feeding—Visiting adjoining sericulturists—Space necessary for educating one-and-a-half ounces of eggs—Scarcity of leaves for food—Termination of feeding—Bringing in the brushwood—Spinning the cocoons—Reeling live cocoons—Steaming—Stringing for reproduction—Issue of moths—Pioneer worms and moths—Result of the harvest—Rewards to peasant educators—Obligation of Turkish Government to Mr. Griffitt Pages 257 to 268

CHAPTER XX.

Smyrna to Constantinople.—Steamer arrangements—Beginning of the voyage—Traits of character—An astronomical party—Island of Mitylene—Splendour of the morning sky-tints—The Troad—Tenedos Island—Beshika Bay—Entrance to the Dardanelles—Particulars of the forts and guns—Chanak—The castles of the Dardanelles, Chanak-Kalesi, and Kilid-bahr—The pottery agent—Strait of Abydos, where celebrated swimmers crossed the Hellespont—Prevalence of cultivation—Gallipoli—Sea of Marmora—Thracian Chersonesus—Rodosto—The nine Prinkipos islands—Approach to Constantinople—The buildings—Mosque of St. Sophia—Galata—Topkhane—Pera—The Bosphorus and its beauties—The Golden Horn Pages 269 to 279

CHAPTER XXI.

Constantinople.—Difficulty of deciding where to go first—Suggestions—The guide and his fee—List of objects of interest—Probable position of the steamer—Commencement of sight-seeing—The mosque of St. Sophia—Other mosques—The hippodrome and its obelisks—Bronze column from Ephesus—Cisterns of Philoxenus—The Seven Towers—Museum of costumes—Museum of Antiquities—The great bazaars—Genoese watch-tower—View from the summit—The whole a gorgeous panorama—Topkhane—Galata—Pera—Stamboul—Conclusion
Pages 280 to 293

CHAPTER XXII.

German Competition in the East.—Activity of travellers—German consuls more useful than English—Prince Bismarck always on the watch—

Technical education required by British lads—Germans good linguists—Advantage this confers in Asia Minor—German humours the country buyer—German travellers riding forth—Neglect by British Government of their subjects in Turkey—Opposite policy of the Germans—Waste of British money on ambassadorial and consular buildings and gardens—Economy in this respect of the Germans—Their liberality in grants for educational purposes—The German Deaconesses Institution—Good results—German school and American college at Pera, and on the Bosphorus—British children wholly dependent on Americans, Germans, and Greeks for their education—Plethoric officials indulged by British Government, and education starved Pages 294 to 299

CHAPTER XXIII.

The Bosphorus.—A party made up to pic-nic on—Extent of current, always flowing westwards—Curves and promontories—Beginning of the voyage at the Bridge of Boats over the Golden Horn—Mosques seen from the starting-point—Turkish captains give orders in English—The marble-fronted palaces—Scene of the assassination of Abdul Aziz—Leander's tower—Skutari—Kadikœi—Moda Bay—Dolma Bagtche palace—Oheraghan palace—Sultan's present kiosk—The Selamlık, or weekly visit of the Sultan to a mosque—Ortakeuy mosque—Pretty scenes—Imperial kiosk of white marble—Steamer zig-zagging across the strait—Rumli and Anadolu Hissar—A historic spot—Strong current—Roberts' College—Source of Bulgarian education and love of liberty—Therapia Bay—Ambassador's houses—Sir Henry Drummond Wolff and his mission—Buyukdéré Bay—The Black Sea—Therapia—Historic plane-tree—Tarkoman gypsies—Return to Constantinople Pages 300 to 315

CHAPTER XXIV.

Constantinople to Dédé Agatch and Smyrna.—Village of Eyob—Ships of war—Sweet Waters of Europe—Arrival at Eyob (Job)—Relics preserved in the mosque, but no admission for any Christian—Prince of Wales said to have been refused entrance—View from top of cemetery very fine—Tombs unattractive—Drinking-troughs for dogs—Reproduction of diaries on board—Departure from Constantinople—Sea of Marmora—Rodosto—Gallipoli—Divine service on board—Through the Dardanelles—Imbros—Samothraki—Arrival at Dédé Agatch, Roumelia—Terminus of railway to the Danube—Roadstead wholly exposed—Story about the railway and Russian plotting—Russian designs—No attractions about Dédé Agatch—Believed to be unhealthy—Daubers and scribblers at work—Thaso isle—Departure—Island of Mitylene or Lesbos—Khios—Arrival at Smyrna Pages 316 to 326

CHAPTER XXV.

Smyrna and its Neighbourhood.—Statistics—How to see the town—Difficulties—Strings of loaded camels—Street scenes—Objects of interest—Dancing dervishes—Distant objects of interest, such as the Apocalyptic churches—Villages around Smyrna—Cordelio—Sanjak Kalissi—Agamemnon's Baths—Boudjah—Bournabat—Koukloudjah—Diana's Bath—Something about the last four places—Attractions—"Jacob's well"—Healthful situations—Anecdote about three Jewish smokers—Picturesque streets and bazaars—Bournabat the focus of the regenerated silk industry—Lake of Tantalus—Scene of the punishment of the son of Jupiter and Pluto—Koukloudjah formerly a favourite resort for Smyrna merchants—The brigand Catterjee Janni and his victim—Charming view from the village—Kiatib Oglu, a former governor of Smyrna—His tragic fate—Subject of a Turkish ballad—Bath of Diana claimed to be adjoining the birth-place of Homer—Statue of goddess found in the pool—Very feverish neighbourhood—Something about Smyrna—Its origin—Sufferings from earthquakes—Laughable anecdote—Scene of Polycarp's martyrdom—Deaconesses Institution Pages 327 to 339

CHAPTER XXVI.

Brigandage in Asia Minor.—Probable origin—Suppression of the Janissaries in 1826—Close of Crimean war in 1856—Sultan Mahmoud—Mahomet Ali—Righeb Pasha—Tchapan Oglu—Salomon Alteras—Rebellions against the Turks—Attack on the Janissaries—Abdul Mijid—Brigandage in the Smyrna district—Greek raiders—Ziebecs—Different systems of attack—Father and daughter seized—Armenian gentleman captured—Turkish farmer pounced upon—Captain Andrea—Thrilling anecdote of crime—Seizure of opium by brigands—The comedy of brigandage—Osman using the rod of correction—Capture of a band of thirteen cut-throats—Two diabolical wretches—Theft of two Turkish girls—Combination of brigands for a stroke of business—Capture of thirty well-known Smyrna merchants—Ransomed for £1800—Ultimate surrender of the brigands—Received by the governor and pardoned—Transformed into vigilant policemen—Their infant virtue fails—They black-mail the peasantry under cover of their uniform—The Procureur-General—The ruffians ordered back to Smyrna—Their arrest in the konak—A free fight—Imprisonment—General Osman Pasha—The barracks—Toufik Bey—An album of brigands—How is the evil to be rooted out? Pages 340 to 357

CONTENTS.

CHAPTER XXVII.

THE SITES OF THE APOCALYPTIC CHURCHES.

Ephesus (1).

Former visitors to—Situation—Word-picture of—Its ancient features—Temple of Diana—Building and dimensions of—Mount Prion—Legends regarding—Other buildings—Sent of the “Black Art”—Destruction of city and temple—etc.

Smyrna (2).

Early history—Modern volcanic convulsions—Polycarp—Rev. Dr. Norman Macleod—Statistics of—Features of streets—Difficulty of getting about—etc.

Pergamos (3).

Situation—Origin—Library—Invention of parchment—Extensive ruins—Nautical amphitheatre.

Thyatira (4).

Limited ancient history—Fame for dyeing—Theatre of stirring scenes—Scantiness of ancient remains—The modern town—Itinerary.

Sardis (5).

Position—Defective ancient history—Monarchs—Tomb of Alyattes—Cresus—Lydian pursuits—Overthrow—Extinction.

Philadelphia (6).

Beauty of approach to—Statistics—Estimating distances—Origin—Paucity of ancient remains—Historical account—The modern town—Long Christian record—Hospitality of the people—Anecdote of silk-farming—Story of a reaping-machine.

Laodicea (7).

Directions for reaching—Journey *via* Hierapolis—Pictures of Hierapolis—Ancient Laodicea—Decline and fall—Present appearance—A personal experience—Conclusion Pages 358 to 394

CHAPTER XXVIII.

Smyrna to Cape Matapan.—Retrospect of past four months—Friendly acquisitions—“Little Earthquake”—How she got the name—Greek Archipelago—Sunrise over Khios—Psara islands—A scene of blood

there in 1824—Negropont and Andros—Doro Channel—Macro Nisi and Zea islands—The Zea Channel—Distant isles—St. Georgio, Belo Poulou, and Karavi islands—Capes Malea and Matapan—Night of gloom and heat—Lacedæmonia—Argument about Spartan austerity—Noble ladies going on the stage—Inconvenient Spartan custom towards bachelors—The Peloponnesian Peninsula—Islands of Cervi and Cerigo—Last glimpse of Greece—Probable origin of the name “Morea”

Pages 395 to 405

CHAPTER XXIX.

Cape Matapan to Gibraltar.—From calm to storm—Out of the Ægean Sea—Broadest part of the Mediterranean—Account in rhyme of a formerly encountered storm there—An amiable Scotch lady—Malta—Outlying islands of Goza and Comino—Something about the Maltese group—Our departure—Cape Bon, Africa—Tunis and Carthage—Volcanic islands of Zembra and Zembretta—The Galita group—Coral and sponge fisheries—Octopus-catching—Reference to Victor Hugo’s ‘Toilers of the Sea’—Variety of scenery—Profound depth of the sea—Coast of Spain—Cape de Gata—Almeria, once a nest of pirates—Mountains of Granada—Towns of Balerna and Elena, Adra Motril, and Torrox—Malaga and its twinkling lights—Something about it—People fond of smuggling—Gibraltar before dawn—Sketchers at work—Coaling amidst a gale of wind—Remarks about “the rock” and its history—Our departure Pages 406 to 424

CHAPTER XXX.

Gibraltar to Liverpool.—Gibraltar from the bay—Varying opinions as to the rock among the passengers—O’Hara’s tower—Result of the argument—Algeciras—Picturesque situation—The steam ferry—A bit of history—Spain and Morocco—Fortress of Ceuta—Apes’ Hill—“A wilderness of monkeys”—Supposed subterranean passage under the strait—Peregil island—Outposts of the Moors—Comparison between Gibraltar and Ceuta—Cape Spartel, Morocco—In the Atlantic Ocean—Trafalgar—Reference to Nelson’s great sea-fight—Cadiz—Byron’s lines on the ladies thereof—Cape St. Vincent—Coast of Portugal—Approach to Lisbon—Cintra—Oporto—Vigo Bay, Spain—Cape Finisterre—Mount Tremuso—The Camarinas—Cape Villano—Last glimpse of Finisterre—Sunset in the Bay of Biscay—Fog and danger—Steam-whistle and bell going—Ushant—Scilly islands—Land’s End—Cape Clear—St. George’s Channel—South Stack—Anglesea—The pilot—Arrival at Liverpool Pages 425 to 443

ÉPILOGUE Page 444

LIST OF THE ILLUSTRATIONS.

Chapters.	No.	Subjects.	Photos.	Sketches.	Page.
I.	1	MOUTH OF THE TAGUS . . . . .	..	S.	9
II.	2	GALITA ISLANDS . . . . .	..	S.	17
	3	PANTELLARIA, AN ITALIAN VOLCANIC ISLAND . . . . .	..	S.	18
	4	MALTESE LADY IN WALKING-ATTIRE	P.	S.	24
III.	5	MOUNT ELIAS, GREECE . . . . .	..	S.	33
	6	CERIGO ISLAND, GREECE . . . . .	..	S.	31
	7	ISLAND OF CANDIA, A DISTANT VIEW . . . . .	..	S.	35
	8	HERMIT'S CHAPEL, HUT, AND GROTTO, MALEA . . . . .	..	S.	37
	9	ISLAND OF KARAVI . . . . .	..	S.	38
	10	APPROACH TO THE GREEK ISLAND SYRA FROM S.E. . . . .	..	S.	40
	11	AGAMEMNON'S BATHS, BAY OF SMYRNA . . . . .	..	S.	44
	12	FIRST GLIMPE OF SMYRNA . . . . .	..	S.	45
IV.	13	ROCK-HEWN STATUE OF NIOBE, NEAR MAGNESA . . . . .	..	S.	52
	14	ENCAMPMENT OF CAMELS, PLAIN NEAR SARDIS . . . . .	..	S.	50
V.	15	METHOD OF PRUNING THE MULBERRY DURING FOUR YEARS . . . . .	..	S.	71
VI.	16	ROCK BAS-RELIEF OF SE-OSTRIS OR RAMSES II. . . . .	..	S.	79
VII.	17	THE INCUBATOR FOR HATCHING SILKWORMS . . . . .	..	S.	88
	18	KNIFE FOR SHREDDING MULBERRY LEAVES . . . . .	..	S.	90
	19	PERFORATED-PAPER SILKWORM TRAY . . . . .	..	S.	90
	20	FRAME ON WHICH SILKWORMS ARE FED . . . . .	..	S.	93
	21	SYRIAN SILK-REELER AT WORK . . . . .	..	S.	96
IX.	22	SIZE AND APPEARANCE OF THE AVERAGE SILK- WORM DURING FIRST EIGHT DAYS . . . . .	..	S.	117
	23	DITTO DITTO SECOND AGE . . . . .	..	S.	119
	24	DITTO DITTO THIRD AGE . . . . .	..	S.	120
	25	DITTO DITTO FOURTH AGE . . . . .	..	S.	122
	26	DITTO DITTO LAST AGE . . . . .	..	S.	124
	27	THE SILKWORM MOUNTING TO SPIN . . . . .	..	S.	124
	28	ARRANGING BRUSHWOOD FOR SPINNING SILK- WORMS . . . . .	..	S.	127
XI.	29	MALE AND FEMALE COCOONS STRUNG FOR RE- PRODUCTION . . . . .	..	S.	149
	30	FEMALE MOTH PINNED TO CLOTH FOR EXAMINA- TION . . . . .	..	S.	159
XIII.	31	APPEARANCE PRESENTED BY A SILKWORM AF- FECTED WITH "PERRINE" . . . . .	..	S.	180
	32	DIAGRAM SHOWING HIGHLY CORRUPTED CLOTH GRAINE . . . . .	..	S.	180

LIST OF THE ILLUSTRATIONS.

xv

Chapters.	No.	Subjects.	Photos.	Sketches.	Page.
	33	DIAGRAM SHOWING YOUNG CORPUSCLES ABOUT TO DEVELOP . . . . .	..	S.	181
	34	SEGMENT OF A CORPUSCULOUS WORM MAGNIFIED . . . . .	..	S.	185
	35	A SILKWORM DEAD OF "FLACHERIE" . . . . .	..	S.	188
	36	THE VIBRIONES OF "FLACHERIE" MAGNIFIED . . . . .	..	S.	193
	37	FERMENTS FROM STOMACH OF CHRYSALIS WITH "FLACHERIE" . . . . .	..	S.	194
	38	A DISSECTED CHRYSALIS SHOWING INTERNAL ORGANS . . . . .	..	S.	195
	39	"BOTRYTIS BASSIANA," OR SILKWORM MILDEW, MAGNIFIED . . . . .	..	S.	197
XIV.	40	METHOD OF COUNTING CORPUSCLES ON THE MICROSCOPE FIELD . . . . .	..	S.	205
XV.	41	VILLAGE OF KOUKLOUDJAH BY MOONLIGHT . . . . .	..	S.	212
XVI.	42	MARBLE-FRONTED HOUSES, SMYRNA	P.	..	226
XVII.	43	KELCHIE KALEH, OR GOAT'S CASTLE . . . . .	..	S.	232
	44	AYASOULUK, NEAR EPHEBUS . . . . .	..	S.	234
	45	WINDINGS OF THE RIVER MEANDER AND MOUNT CADMUS . . . . .	..	S.	235
XVIII.	46	TURKISH DRAGOMAN AND GUARD . . . . .	..	S.	243
	47	RIDING FORTH BEFORE DAWN . . . . .	..	S.	244
	48	BULGARIAN FARMER AND BOY	P.	..	247
	49	HIERAPOLIS, AS SEEN FROM LAODICEA . . . . .	..	S.	254
	50	GREEK COPPER BRAZIER FOR HEATING ROOMS . . . . .	..	S.	261
XIX.	51	PICKING AND SHREDDING MULBERRY LEAVES FOR EARLY FEEDING . . . . .	..	S.	262
	52	FEMALE MOTHS OF WHITE AND YELLOW RACES . . . . .	..	S.	266
XX.	53	ENTRANCE TO THE DARDANELLES FROM MEDITERRANEAN . . . . .	..	S.	271
	54	TOWN OF GALLIPOLI, NORTH-EAST END OF DARDANELLES . . . . .	..	S.	274
	55	ISLANDS OF MARMORA AND ARAPLAR, SEA OF MARMORA . . . . .	..	S.	275
	56	THE SEA OF MARMORA AND PRINCES ISLANDS	P.	..	276
	57	BRIDGE OF BOATS, CONNECTING STAMBOUL AND GALATA, CONSTANTINOPLE	P.	..	277
	58	ENTRANCE TO GOLDEN HORN, AS SEEN FROM PERA, CONSTANTINOPLE . . . . .	..	S.	278
XXI.	59	TYPE OF THE CONSTANTINOPLE JEWISH GUIDE	P.	..	281
	60	THE HIPPODROME, ST. SOPHIA, AND OBELISK, CONSTANTINOPLE	P.	..	285
	61	OLD SERAGLIO ENCLOSURE, SKUTARI IN DISTANCE, CONSTANTINOPLE	P.	..	289
	62	MODA BAY, NEAR SKUTARI, ASIATIC SIDE OF BOSPHORUS . . . . .	..	S.	290
	63	MOSQUES ILLUMINATED DURING RAMIZAN, CONSTANTINOPLE . . . . .	..	S.	292
XXIII.	64	IMPERIAL KIOSK OF WHITE MARBLE, ON THE BOSPHORUS	P.	..	307
	65	NARROWS OF BOSPHORUS, LOOKING TOWARDS THE BLACK SEA . . . . .	..	S.	308
	66	NARROWS OF BOSPHORUS, LOOKING TOWARDS CONSTANTINOPLE . . . . .	..	S.	309
	67	RUMLI HISSAR, AN OLD GENOESE CASTLE, BOSPHORUS . . . . .	..	S.	310

LIST OF THE ILLUSTRATIONS.

Chapter	N ^o	Subjects.	Photos.	Sketches.	Page.
	68	RUMLI HISSAR, AND ANADOLU HISSAR, BOSPHORUS	..	S.	311
	69	ENTRANCE TO BLACK SEA, AS SEEN FROM BUTYRLÉLÉ BAY, BOSPHORUS	..	S.	312
	70	GROUP OF TURKISH GYPSIES, THERAPIA, BOSPHORUS	P.	..	313
XXIV.	71	VILLAGE OF DÉDÉ AGATCH, ROUMÉLIA	..	S.	320
	72	SHIPS LOADING GRAIN IN THE BAY OF DÉDÉ AGATCH	..	S.	321
	73	THE ISLAND OF KHIOS, GULF OF SMYRNA	..	S.	326
XXV.	74	GROUP OF DANCING DERVISHES, PREPARING TO TWIRL	P.	..	329
XXVI.	75	ZIBEC, OR TURKISH MOUNTAINIER	P.	..	345
	76	TURKISH IRREGULAR FORCES	P.	..	346
	77	A GREEK BRIGAND CAPTAIN AND LIEUTENANT	P.	..	349
	78	A BRIGAND IN ALBANIAN HOLIDAY COSTUME	P.	..	352
XXVIII.	79	DORO CHANNEL, ANDROS, AND NEGROPONT ISLAND	..	S.	399
XXIX.	80	PART OF THE GRAND HARBOUR, MALTA	..	S.	410
	81	CAPE BON, THE EASTERN EXTREMITY OF THE GULF OF TUNIS	..	S.	411
	82	ALYERIA BAY, WEST SIDE, THE MALAHACEN AND BALERMA	..	S.	416
	83	GENERAL VIEW FROM THE BAY OF GIBRALTAR	..	S.	419
XXX.	84	CAPE SPARTEL, NORTH-WEST POINT OF MOROCCO	..	S.	429
	85	CAPE FINISTERRE	..	S.	435
	86	CAPE VILLANO, THE SOUTH-EAST EXTREMITY OF THE BAY OF BISCAY	..	S.	436
	87	THE IRISH COAST, CAPE CLEAR, AND WAR-SHIP	..	S.	440
	88	THE PILOT-BOAT OFF POINT LYNUS, ANGLESEA	..	S.	442

PROLOGUE.

DURING 1864 to 1867, I had occasion to travel through, and be temporarily located in, several parts of China, including the tea and silk districts; and in the course of those years had many opportunities of seeing, studying, and inquiring into the production and preparation of sundry native articles of commerce. Among such, the two which interested me most were silk and tea. While thus wandering about in various provinces, taking notes for future use, the thought frequently and persistently occurred—"Why should not tea- and silk-farming be introduced into one or other of Britain's semi-tropical colonies, such as the north of New Zealand, and be as successfully conducted there, in the form of a combined industry to save expense, as the products are separately harvested in China?" With this question ever present, I continued my researches from time to time during different seasons, until I believed that I had collected sufficient information on the chief points connected with the Chinese methods of management.

Before leaving China, I began a correspondence with colonists in New Zealand and Australia on the subject, urged to some extent by favourable newspaper reports I had seen, and interviews I had had with individuals concerning districts in both countries, whose climate and general advantages proclaimed them suitable for the industries I wished to promote. Unfortunately, nothing definite immediately followed this first effort, although, doubtless, the letters I had written, and the oral explanations I had given, must have been remembered, and like seed dropped

and the idea germinated afterwards. In the meantime the failure had the effect of deciding me to try again in a different direction, where a wider field lay open.

On my return to London in 1867, I happened to be thrown in the way of some coffee-planters from Brazil and other places, and for the first time it struck me that Ceylon might be worth a trial. I accordingly called upon the chief business representatives of that beautiful island, urging upon them the desirability of adding tea to its other products, explaining how the industry was managed in China and India, and offering my services to start a model tea-garden in any suitable locality. To everything I said respectful attention was paid, but not one of the gentlemen addressed would consent to make a beginning, and all of them had numerous objections to offer. I was told, for example, that the Ceylon coffee-planters knew nothing, and cared, if possible, less, about tea-farming; that their estates were already fully occupied with coffee; that labour was too expensive to admit of the "fragrant leaf" being grown and manipulated to advantage; that, in short, "the game was hardly worth the candle." My arguments thus fell upon sceptical or unwilling ears, and no steps of any importance were taken for a further period, until the pinch of the various coffee-plagues came. Nevertheless, eight years had not elapsed ere tea-farming had taken root as a Ceylon industry.

During 1868, I continued my efforts to gain the ear of individuals, as well as the attention of the general public, to the combined project; but the period proved unfavourable in consequence of the poor success which at that time marked the management of some of the Indian tea plantations.

For fully seventeen years the silk trade of Europe had been suffering from the spread of several infectious silkworm diseases, and the crisis had now become so acute that on the 18th February, 1869, the "Silk Supply Association" was formed in London, to take measures for the arrest of the evil, and to promote silk-farming in every country suited to the

growth of the mulberry. Scarcely had the news of this movement reached New Zealand, than the subject of sericulture was taken up with considerable spirit in the colony; the Government published a series of papers connected with the industry, dated 1870; a trifling bonus was offered by way of encouraging experimenters; a little enthusiasm and excitement prevailed for a time, then the whole affair seemingly dropped into oblivion.

From 1868 to 1875, I lost no opportunity of keeping kindred matter connected with the claims of tea- and silk-farming, prosecuted as a twin-industry, before the public, in the columns of the *Glasgow Herald*, *London Scotsman*, 'Food Journal,' 'Victoria Magazine,' 'British Trade Journal,' and other prints. In the last-named periodical I published an essay on 1st October, 1875, headed, "Ceylon as a Tea Producer," in which the subject was explained, and the enterprise and progress of the planters of that island duly acknowledged, their having during the previous eight years covered 1100 acres of land with tea shrubs.

On the 1st November following, the same journal printed another communication of mine on "Australia as a Silk Producer," in which was shown what had already been done there by Mrs. Bladen Neill and others: how sericulture was managed in China, and how desirable it was that silk-farming should be extended to other British colonies.

Between 1875 and 1880, I continued to handle the subject, and saw with the utmost satisfaction that Ceylon was now fairly launched among the tea-producing countries of the world, but was disappointed that silk had not as yet been added to the list of her products. For a period of sixteen years I had lived in the hope of seeing the combined industries prosecuted together under the British flag, and fancied at one time that Ceylon might take the lead; I was disappointed; so I turned at length to New Zealand, and made a beginning by addressing the Agent-General in London on the subject on the 3rd July, 1879.

My stock of exact information regarding the colony,

although at this period far from complete, was sufficiently so to enable me to reopen the matter with some of the residents; and by appeals through the local press to get the proposal to start tea- and silk-farming on a scale of some magnitude entertained and discussed. Simultaneously, with these efforts on my part, the New Zealand Government nominated a "Colonial Industries Commission" to inquire whether certain trades ought to be promoted or aided by the Executive, and to take the proper steps. The Commissioners began their labours in March, and handed in their report on the 29th July, 1880. Among the evidence given at page 39, by Mr. Richard Dignan, of Auckland, was a quotation from one of my letters, advocating my project for that province, and asking if the Government were likely to grant any assistance, and if so, in what manner. The reply to this question and inquiries from other quarters, was a proposal to revive the shabby little bonus of 1871, which no one had ever thought of claiming, and which is probably still safe in the Treasury.

On the 30th October, 1880, the first of my communications, in advocacy of tea- and silk-farming as a combined industry for the province of Auckland, appeared in *New Zealand Public Opinion*, Dunedin, inserted by John Bathgate, Esq., at that time a judge in the Supreme Court, who from the first, and ever since, has taken a keen interest in the proposal. This article was followed by a second in the same journal, dated 22nd January, 1881. Other communications appeared in the course of the following year in several of the daily newspapers of both the North and Middle Islands, the editors of which, in most cases, gave the stamp of their approval to my suggestions, by writing able and interesting leaders from time to time on the subject.

While these articles and letters were appearing at the Antipodes, another set received the publicity of the *Glasgow Herald*, on the 13th November, 4th, 8th, and 10th December, 1880, 4th February, 1st March, and 23rd June, 1881, and

26th December, 1882; while a third series gained admission into the pages of 'Chambers's Journal,' on the 19th March, 23rd July, and 20th August, 1881, 14th October, 1882, 5th May and 10th November, 1883, and 16th August, 1884. Essays and letters also appeared during those years in 'The Colonies and India,' 'The British Trade Journal,' 'Land and Water,' London; and in 'The North British Agriculturist,' Edinburgh. The essays in 'Chambers's Journal' attracted the attention of the Council of "The Society of Arts," London; and towards the end of 1881, I was requested by the secretary to prepare a paper on the subject, which I did. On the 31st January, 1882, I read this essay, entitled, "On the Physical and Social Capabilities of New Zealand for Tea and Silk Culture," before the members of the Society. It was favourably received, and was printed in the Society's journal of the 3rd February, 1882.

Later in the course of the same year, the "Highland and Agricultural Society of Scotland" awarded a premium to the writer for a treatise contributed to their volume of Transactions, No. XIV., entitled, "Tea and Silk Farming in New Zealand."

On the 19th July, 1882, a question was asked in the New Zealand House of Representatives relative to my communications to the Government, and proposals, by the gentleman already mentioned, Mr. John Bathgate, member for the Roslyn district of Otago. The answer was unsatisfactory; nevertheless, my previous correspondence, through the Agent-General in London, had evidently not been thrown away, nor Mr. Bathgate's query uttered in vain, as, when he returned to the attack on the 21st August, 1883, he elicited the information that encouragement had meanwhile been locally given to a practical gentleman, who had "succeeded in raising silkworms and obtaining silk from them, excellent samples of which had been shown at the Christchurch Exhibition." This gentleman, Mr. G. B. Federli, a native of Italy, but in the service of the Government at the time, continued his labours afterwards with success; and under the

authority of the Executive, in 1883, published a little pamphlet on "Silkworm Rearing" for the instruction of the colonists.

It is true that the Colonial Government by their offer of a bonus, by the employment of Mr. Federli to inaugurate the silk industry, and by afterwards sending him on a tour of inspection over the islands, did something to bring sericulture into favour. Unfortunately, they left out tea-farming—a most important item—from their programme. This omission could scarcely have occurred through ignorance on the part of the officials, because at page 42 of the report by the Industries Commission (1880), Mr. Thomas Kirk, a scientific local agriculturist, in his evidence, dated 8th June, 1880, stated—"There can be no question that the Assam variety of tea can be grown very well in the North Island." This assertion has been borne out at various times and places there, by private experimenters on a small scale; but for some reason, as yet unknown, it seems as if the Government had become prejudiced against the introduction of tea-farming, and determined to give it no encouragement. The general objection put forward against it (seemingly borrowed from the Ceylon planters of 1867) was the great cost of labour in the colony; but those who used this fallacious argument seem to have forgotten that the drawback in question was equally applicable to silk-farming and every other calling followed in New Zealand. In this connection it was repeatedly explained, in communications to the Government and through the newspaper press, that the supposed difficulty could be met and conquered by the close union of the two industries, conducted scientifically on the same farm and under one management.

So far, therefore, the New Zealand Executive cannot be said to have earned much gratitude for their treatment of the proposal. On the other hand, in every case where I approached the editors of home or colonial newspapers and magazines personally or by letter, the subject found immediate sympathy, and their columns were opened to

articles and general discussion of the project. Thus, from first to last, the proposal to establish tea- and silk-farming as a combined industry in the north of New Zealand, must have already been made familiar to millions of people in both hemispheres. Indeed, the question has frequently of late been asked from the Antipodes and elsewhere—"When is the industry to be commenced?" To such a query it can only be replied, that the New Zealand Government stops the way. The continued absence of a definite policy on their part, of either liberal assistance or cold neutrality, has prevented home capitalists from engaging in the enterprise. The colonists are favourable; the Maoris of Auckland are eager to have the twin-industries established in their midst, and to help with land, capital, and service; numbers of Europeans and others have caught the enthusiasm; and, doubtless, capital in plenty from the Old Country will be forthcoming whenever the Colonial Government awakes to a sense of duty, and to a thorough perception of the importance of the scheme.

It is but fair that the action of another adverse element should be alluded to, as having possibly interfered, to some extent, with the more rapid development of the proposal. Something has been owing to the uncertainty prevailing in the minds of investors, regarding the likelihood of immunity, or otherwise, in the future of the silk enterprise from the effects of the maladies which, for the past thirty-five or forty years, decimated the silkworms of Europe, and are at present rapidly destroying those of China. For some years it had been known, among a limited circle, that M. Pasteur, of Paris, had thoroughly scrutinized those diseases, and had found a remedy; but the circumstances and the commercial results had not transpired among the general public. In a case of such importance I felt that the testimony of an eye-witness might prove valuable. Accordingly, having discovered in my friend, Mr. John Griffitt, of Bournabat, near Smyrna, a silk-farmer of more than thirty years' experience in Asia Minor, and an ardent

PROLOGUE.

disciple of Pasteur. I determined to pass through a silk season by his side on his own premises, so as to be in a position to judge for myself, whether or not the dreaded maladies had been brought under human control. Mr. Crillitt's experiences and my own observations are now given in Chapters IV. to VII., IX., XIII., XIV., and XIX.

The substance of one chapter originally appeared in the form of a report by the author, in the 'Journal of the Society of Arts,' London, of the 19th June; eleven chapters were contributed to the *Glasgow Herald*, and found places in its columns between the 25th July and 12th September; the bulk of three chapters was printed in the 'British Trade Journal,' London, on the 1st May, 1st July, and 1st November, 1885; Chapter XXVII. occupied space in the three issues of *The Stirling Observer*, of 8th April, 19th and 26th August, 1886; while the remainder is now published for the first time.

Regarding the illustrations, it may be added that sixty-four of them have been engraved from a selection of the author's sketches; sixteen were executed from photographs by Messrs. Sébah, of Constantinople, Rubellin and Zilpoche, of Smyrna, and Agius, of Malta; while a few were derived from a work, published in Smyrna in 1868, by M. Jean A. Topuz, entitled, 'Éducation des Vers à Soie.'

Without further preface, then, I would ask the reader's kind indulgence towards any shortcomings met with in the text. The work has been produced, among other objects, with a philanthropic aim, and if in any measure successful in this direction, there will be much cause for gratification. Far-reaching national results must follow any prosperous attempt to establish the harvesting of such extensively consumed articles of commerce as tea and silk in any of our possessions or colonies, where the surplus labour of the Old Country can be profitably employed.

PEN AND PENCIL IN ASIA MINOR;

OR,

NOTES FROM THE LEVANT.



CHAPTER I.

LIVERPOOL TO GIBRALTAR.

WHETHER the reader be a professional man, a manufacturer, or a trader, there is likely to arrive a period in his life when a change of climate and scene, however brief, will be required for the resuscitation of his jaded faculties; and probably no such change could be more complete and beneficial in every respect than a trip in a Cunard steamer along the Mediterranean. Accordingly, for the benefit partly of all hard workers, the following notes of the writer's experience during a recent voyage to, and a short residence in, Turkey have been penned. I refrain from naming any particular season of the year for such a trip as being either the best or one to be avoided. The time of each one's going must clearly depend on personal convenience as much as on other considerations. In my own case the date was fixed without regard to temperature, serene skies, or a placid ocean; I required to reach one of the Levantine ports before the end of March, 1885, so the cold of a boisterous February, and the swell of the tumbling Atlantic had to be faced as best I could, in the hope that the union of a search after health, and the prosecution of some important inquiries might not prove incompatible.

There are at present two routes over the Mediterranean by the Cunard line open to travellers—one by that company's Italian, Sicilian, and Adriatic steamers, and the other by their Levant ships. The first class fare out and home by either way is £40, and the time usually consumed on the round voyage, including stoppages, about two months. It is to the Levant tour that the following remarks apply.

I had arranged for a passage by the good old Clyde-built steamer * "Sidon," of 1200 tons measurement, 212 horse-power, commanded by Captain Fenwick, and joined the vessel in Alexandra Dock, Liverpool, during a dismal night in February. There are advantages gained by passing on board one's temporary marine home the night before sailing, avoiding, as such a course does, the hurry-scurry of the morning. There is time to correct any trifling error which may have occurred; to replace any small forgotten article necessary for comfort during the voyage; and to acquire a feeling of possession and tenancy in regard to one's berth. But there are at the same time serious drawbacks in the noise and dirt inseparable from getting in the remaining cargo, and the tiresome vibration of steam winches, clanking chains, and violently oscillating heavy packages all through the small hours. Nevertheless, such disagreeables evidently had exercised no deterrent effect on the ship's complement of tourists as it was announced about ten o'clock that, all the passengers, twelve in number, being on board, the steamer would put to sea the following morning promptly at eight.

With daylight came the hurried bustle and commotion which heralds the departure of a sea-going vessel. Friends of passengers came rushing on board, and other persons went scrambling ashore. A band of active stewards shouldered along the gangway a large supply of dressed sheep, sides of bacon, and quarters of beef, which fresh provision against hunger was carefully hung up under one

* The "Sidon" was afterwards wrecked on a ledge of rocks about 200 yards from the Spanish coast, near Malpiquea, on the night of the 27th October, 1885, when some loss of life occurred.

of the boats and surrounded with a canvas screen. Of livestock an ample quantity had already been placed in convenient nooks in the fore-part of the ship, so that during the voyage, at least as far as Malta, the first port of call, there seemed no risk of starvation.

Sharp to the minute, as the Liverpool clocks chimed the hour of eight, the "Sidon" moved slowly away from the quay wall under the persuasive pull of a tug-boat; and was followed out of the harbour by the great Atlantic liner "Oregon,"* also outward bound. Behind, in the dock, remained the equally magnificent steamers "Servia" and "Cephalonia," loading; and it was when leaving those mighty triumphs of marine architecture a little way in rear that their vast bulk came to be properly appreciated, as the difference between steamers of 1200 tons and 5000 tons becomes very evident when they are seen separated by only a short stretch of still water. In about half-an-hour the "Sidon" was fairly clear of the docks, and sailed slowly along the Mersey towards the light-ships which, on account of the mist hanging over the river, were engaged emitting doleful strains from their steam syrens and fog-horns. There was little opportunity, however, allowed for listening to the depressing blasts, as the more musical and welcome breakfast bell quickly produced all the passengers at table in the saloon, who, along with the officers not on duty, formed a bright and joyous-looking party of sixteen. The fare proved good and abundant, the cooking unexceptionable, the service active, and all the accessories cleanly and agreeable, so that the voyage commenced under favourable conditions. My fellow-passengers seemed made of the right material for travellers, as there appeared to be among them from the beginning a disposition to be mutually

* On the 14th March, 1886, this vessel, the "greyhound of the Atlantic," was run into by a coal-laden schooner, which sunk immediately, near Fire Island, New York. The "Oregon" kept afloat for nine hours, and all the passengers were rescued and taken on board other ships, particularly the German steamer "Fulda" from Bremen.

agreeable. There were two young English ladies, returning from a holiday visit to their home in Malta; and an Irish lady, desirous of seeing a little of the ancient world; an old clergyman and his secretary from one of the inland counties, taking their annual holiday; two young legal gentlemen from Liverpool, going on the same errand; two gentlemen of business from Nottingham, in search of health after years of harassing labour; a retired Northumberland squire, on the hunt for novelty; and an Oxford student, bent on probing the antiquarian secrets of the Greek Archipelago.

The meal of the morning having been unavoidably delayed, on account of the vessel's departure at eight o'clock, and most heartily partaken of when offered, no one seemed to anticipate any very elaborate preparation for lunch. Nevertheless a hot refreshment, consisting of soup, joint, vegetables, celery, and cheese, was provided at once, to which all did justice; for, as one of the passengers whispered to the Northumberland squire:—

“For, air and exercise, each person knows,
To the consumption of refreshments tend;
And thirst; and appetite are mortal foes,
Which equally all human vitals rend.
What soothes like lunch? Who doctors like the seas?
And who prescribes like a stiff Channel breeze?”

Under such circumstances the reunion was one of unadulterated enjoyment, as *mal de mer*, the dreaded of landsmen, had not yet interfered. Indeed, although the morning ripples had now developed into waves, no change, even when passing the Skerry rocks off Holyhead, was visible in any one's appearance or demeanour. The kindly joke, the responsive smile, and the contagious laugh prevailed; but rude Boreas was only biding his opportunity, for an ominous heave was fast spreading over the face of the deep, and the hitherto steady and well-regulated vessel began to indulge in gyrations which might have been excusable in a Glasgow harbour ferry-boat, or in a Thames penny steamer,

but which we all felt and pronounced wholly unnecessary and out of place in a twelve-hundred ton Mediterranean ship. Seemingly, by universal consent, the conversation turned upon the various plans recommended for the fortification of the human viscera against the siege of Neptune. But all too speedily it was acknowledged that the nostrums suggested were little better than feeble quackery, and that the callous and unappeasable old sea-god would presently demand and receive his tribute. Hitherto on deck most of the gentlemen had tried the solace of the fragrant weed in one or other of its forms, and a few, with grave, lengthened, and somewhat greenish visages, were even yet blowing clouds of perfumed vapour into the air. But gradually newly-lighted cigars were one by one stealthily dropped overboard, and pipes of gorgeous hue, massive with the precious metals, were recklessly laid down, and regardlessly left to take care of themselves on the wings of the wheel-house, while the owners stood or sauntered about, making believe to be in search of oxygen. In the midst of this preternatural solemnity and growing desire for the consumption of one of the constituents of the atmosphere, the dinner bell rang, but I observed none of the alacrity of the morning to place limbs underneath the steamer's mahogany; and when at length we lords of creation got seated at the well-spread board, certain gaps and vacancies betrayed the fact that some of our fair passengers had already succumbed. Under such blighting influences the principal meal of the day became a hollow mockery, or rather, the last three words quickly became descriptively applicable to most of those who had recently sat down. Before the second course had been removed, one after another of the doleful voyagers retreated precipitately from the saloon, and presently only four tough veterans were left cracking walnuts with their port, and doubtless crowing over the weakness and degeneracy of their fellow-passengers. The hour was still early, but all festivity was at an end. Private cabins were rapidly occupied by persons far removed from feelings of happiness ;

disual gurglings and wailing apostrophies to the ocean ever and anon broke upon the ear; presently even these dejected tones ceased, and the only disturbance of the intense hush which followed was the steady pounding of the propeller and the lullaby of the chasing waves.

It by no means follows that, because one may have retired to rest the previous evening in an unhinged state of body, the comfort of balmy sleep cannot be enjoyed. On the contrary, I can truly aver for myself and others that our first night on the ocean on this occasion was marked by refreshing slumber, which might have continued longer, certainly, but for the uproar of the elements and the responsive movements of our baggage. Judging from what passed before my own eyes, and from what I heard in the adjoining cabins, I may say without exaggeration that the passengers' effects seemed instinct with life, and with an unquenchable thirst for gymnastic performances. Portmanteaux, bags, hat-boxes, writing-desks, and packages of tin appeared to be pursuing each other in every direction, and to be coming into frequent collision with their several proprietors. The expression of sudden spasms of pain, usually represented in print by the letter "O," rang frequently out into the keen morning air, as some one's tender corn suffered from contact with a madly-careering box, or some one else's head got bumped against the walls of his violently-oscillating state-room. In my own case, while crawling out feebly and regardlessly from a lower bunk, I received on my unprotected pate sundry sharp-cornered packages shot suddenly from the berth above, where they had been placed for security. During this racket and general suffering, it was a rallying point of hope to know that there were those in the steamer upon whose health and equanimity the winds, waves, and demented baggage impinged in vain. The active and cheerful little steward attached to the block of cabins in which I and others now lay wrestling with the common enemy, was unremitting in his attention. He continually visited his gasping, grumbling, unreasonable,

nauseating charges, politely inquiring at last who wished breakfast to be brought to his bedside, as the meal was nearly ready.

"There are eggs done in five different ways, sir," said John to the groaning rhymster, who, in the midst of his misery, was nevertheless lugubriously gingling a few stanzas together.

"There is also fat Wiltshire bacon, sir; lean ham, Irish stew, kidneys, Singapore curry and rice, pork sausages, steak and onions, and——"

Here the kindly steward was interrupted by a series of hollow, partially-stifled noises, and the apostrophe—

"Oh! Steward, take yourself away
And leave me in my plight,
Your bill-of-fare, some other day
May tempt my appetite.
This basin is my only friend
When down with *mal de mer*;
To some one else, then, John attend,
Go! Take yourself elsewhere!"

One after another we followed the poet's example in declining any portion or specimen of the varied repast, and as, from this hour onwards during the day, the wind and waves seemed to increase, neither lunch nor dinner found many consumers. Indeed, our arrival off the Scilly Islands, bringing the ship, as it did, into contact with the undiluted majesty of the Atlantic rollers tumbling into the English Channel, completed if possible our condition of abject debasement, and confirmed the Northumberland squire in his belief and assertion that the song commencing with the words, "A life on the ocean wave, a home on the rolling deep," was the sentiment of an enthusiast, and must have been written by a maniac.

It is, I fancy, characteristic of fallen human nature to feel a degree of relief, and be soothed by knowing that no one is altogether solitary in his or her sufferings. Let the victim of sea-sickness, for example, be told and got to believe that others in the same ship are enduring similar

PEN AND PENCIL IN ASIA MINOR;

or worse prings, and the probability is, that the patient thus appeared to will speedily recover, as I did, and begin immediately to climb the ladder of convalescence. Having been among the first to strike my colours, and abandon my substance to swaggering Neptune, I was one of the earliest to dispute his power, and spurn his slavery; yet although I did not recover my usual robustness of appetite, any more than my fellow-voyagers, for a day or two, we all, with one exception, got speedily well, and admitted afterwards that our late wretchedness had not been endured in vain. The exceptional case was that of the clergyman on board, who, strange to say, had not been sick at all, but had unfortunately fractured the ulna of his left arm when the tempest was at its height.

Meanwhile, the horrible Bay of Biscay, the terror of every landsman, had been crossed; the normal greenish hue of some of our faces had changed into a more healthy-looking and agreeable pink; and the pleasant sight of the Berlingas Islands, also known as the Burling rocks, about ten miles off—more rugged crags though they are—seemed to infuse fresh life into all of us. Measured from Ushant on the west, to Cape Villano on the east, the sail across this usually turbulent sheet of water is about 375 nautical miles, so that the victim to sea-sickness may safely make up his mind beforehand, should the waves be boisterous, to endure a purgatory of at least thirty-six hours' duration.

While engaged on the fifth day in the saloon writing, and overhauling my stock of sketching materials, a bearded form of most kindly demeanour, one of my fellow-passengers, whispered through the open window (the temperature having risen to 60 degrees), "come and see Lisbon." It was the hasty and pardonable mistake of one not addicted to much or recent geographical study; but I instantly went on deck, and enjoyed a charming view of a long and picturesque stretch of the Portuguese coast terminating in the bold mountain mass of Cape Roca. In the distance, nestling in a pleasant valley, a vast building was

pointed out by the officers of the ship as being the recently repaired palace of King Ferdinand. On the face of a sloping vine, olive, and cork-clad hill appeared the beautifully-situated town of Cintra, about fifteen miles north-west of Lisbon, with attractive suburbs, strange Moorish architecture, the ruins of a Moorish castle, and a convent, the cells of which, being carved out of the solid rock, are lined with slabs of cork-bark to absorb the damp and render them habitable.

The scene comprised at once a lovely and refreshing glimpse of mother earth and human handiwork, to be regretted only on account of the shortness of its duration.



FIG. 1.—MOUTH OF THE TAGUS.

Scanning for a time that fair landscape from the deck of the steamer felt like touching without permission to taste, or momentarily enjoying and the next instant torn away; as a land mist crept rapidly over the whole, which speedily developed into rain, and ere twenty minutes had fled Portugal and Cintra had disappeared from view. For a few minutes only, the mouth of the Tagus (Fig. 1) and its protecting fortress were unveiled sufficiently to be seen and hurriedly transferred to our sketch-books, but during the remainder of the day the ship might well have been in the middle of the ocean, as nothing but mist and waves were visible.

Nor was a praiseworthy effort to see the historic Cape St. Vincent next morning attended with even a modest

no success. The steamer was timed to pass the great headland about 3.30, yet, after awaking and visiting the sloppy deck at that preposterous hour by the light of the dimmest and dreariest of watery moons, I, and one or two others, gained nothing for our sacrifice of comfort except witnessing a dense, black volume of smoke issuing from the funnel, towards the glowing yellow eye of the lighthouse at the base of the Cape, and fancying we saw a resemblance between the rolling cloud of carbon and the body of the genii wriggling out of the iron casket landed by the Arabian fisherman after the seal of Solomon had been broken, as related in a well-known Eastern tale. Again, I made another attempt to penetrate the fog when the vessel was only five miles distant from the shore, but neither the precipice nor the vast fortified monastery on the summit could be seen.

The day had thus commenced in disappointment, yet that feeling was quickly superseded by the sunny magnificence which followed. Under such genial influence even our remaining bilious passenger, who, not possessed of the happy resources of the rhymster to sustain him, had done little else all the way over the Bay of Biscay and since, except emit lugubrious sighs, suddenly pulled himself together; seemed to renew his youth; tried and succeeded in looking blithesome; and commenced to enter freely into the pursuits of the hour. Some of this joyous transformation was doubtless attributable to a sight of land presently obtained, followed by distant views of the grand rugged mountains of Spain. Towards the afternoon the African coast also became apparent, intimating plainly that the Strait of Gibraltar was not far off, and as the short twilight deepened into night the lights on both headlands—Tanger on the African, and Spartel and Tarifa on the European sides—glimmcred through the darkness. These objects of interest, the healthful breeze, the pleasant motion of the steamer, and the evident determination on the part of all to be pleased with everything and every one, contributed to

the complete restoration of the recently suffering. Probably, however, the most marked symptom of recovery had been evinced earlier during the day in the marvellous development in all directions of intense literary activity. Books and pencils began to emerge from hitherto unsuspected pockets, and the throes of composition to begin. At first there was a certain bashfulness visible when the soft impeachment was brought against a lady, of starting a log; but one of the gentlemen boldly demolished the farce by producing an imposing volume from his waistcoat pocket, and another followed his example with a tiny tome like a family bible, both fearlessly announcing that they were about to keep diaries. Their brilliant courage proved infectious, hypocrisy was banished, and presently in every corner of the saloon and in quiet nooks of the upper deck genius was at work.

The calm beauty of the morning and splendour of the afternoon had now been superseded by a boisterous night, and as the good ship screwed her way resolutely between the "Pillars of Hercules" she was confronted by a tempest, which seemed only a little less potent than the tremendous current which rapidly bore us into the Mediterranean. Curiously enough, the conflicting forces thus arrayed against one another in the Strait of Gibraltar, proved but the harbingers of another struggle about to occur at the dinner table. All the passengers, including the maimed clergyman with his arm in a sling, were present; and as conversation became brisk and lively over some debatable subject introduced, it quickly became evident that we were not all politically of the same mind. One of the officers said something in praise of Mr. Gladstone's surpassing genius, and how immeasurably he towers above the lesser Salisburies, Northcotes, Cairns', and other representative statesmen of the period. This tribute to the Premier acted like a spark to tow, or a red rag held before the eyes of a bull; it particularly aroused the ire of the old priest, who immediately opened the batteries of his hot indignation, condemn-

ing the "Grand Old Man," his colleagues, his government, and everything he and they had ever done. Happening to be near the speaker, the reverend gentleman at length turned to me to support his position. I said that I thoroughly believed in Mr. Gladstone, and gave on the spur of the moment a short catalogue of some of the good measures he had been mainly instrumental in achieving for the benefit of his own and other countries. Of the latter, I instanced his restoration of the Ionian Islands to Greece, thus attaching the Hellenians to Great Britain by the strongest bond which could link two nations together. I further remarked that in my humble opinion the Premier required no champion; he was an army in himself as all Tories very well know; but that if he ever needed aid there were three millions of Scotsmen, all Wales, and a large majority of the rest of the world at his back. The discussion now expanded its area until all at the saloon table joined in, some on one side, some on the other. Voices were raised; eyes flashed political fire; hands were clenched; the storm raged without, and a tempest of tongues raged even more furiously within, until tired nature and the weakness of recent convalescence prevailed, when the combatants after a time, through sheer exhaustion, dropped off to bed.

CHAPTER II.

GIBRALTAR TO MALTA.

Our seventh morning at sea commenced with a brilliant sunrise, which would have done credit to the volcanic period of some three years ago, when the sunsets all over the world were for a few weeks of unrivalled splendour. Such tints, such an atmosphere of purity, such exhilarating feelings of intense, unfettered life and capability for enjoyment, that every one seemed to dance as he or she moved, and every countenance wore an expression of beatitude. If anything, the literary fever increased with the experience of enhanced powers of narration; so much so that the men who had set the example of beginning diaries were occasionally heard to regret that they had not provided themselves each with many duplicate volumes.

A few of us had clustered near the wheel-house, and were wrapt in admiration of the sky, when the rhymster came forth from his cabin. We fully expected a thrilling burst of song from him as the glorious orb of day began to dart his golden lightning into every part of the heavens. He scrambled up the little cork-screw steps, however, and simply hummed as he approached to shake hands—

“And many a monkish foot
Has mounted those well-worn stairs,
To the dirge of the owlet’s hoot
And other nocturnal airs——”

But evidently feeling that his impromptu was hardly appropriate to the occasion and surroundings, he added—

“ And many a jolly tar
 Has swaggered here, I’ve no doubt,
 And many a passenger
 Has been turned inside out.
 And many a sickly one
 Has ta’en a fresh lease of life,
 Exposed to this glorious sun,
 And gone straight home for a wife.”

“ Yet, give me the breezy field,
 The river, the lake, the crag ;
 Where gun and rod I may wield
 Aye sure of a bulky bag ;
 Where my fingers I can snap
 At Neptune, and all his frowns ;
 Where for wind I care not a rap,
 On my native, heath-clad downs !”

As the rhymster finished, he, in an unguarded moment, confided to the bluff old quarter-master, who was standing near and heard the stanzas, that his object in appearing so early on deck was not so much to witness the beauty of the dawn as to catch a glimpse of Gibraltar, which none of us had seen on account of the darkness and mist of the previous night. The ancient mariner was equal to the occasion, and transfixed his interlocutor with a look of concentrated pity, which only an old salt can assume towards the unwary landsman who has committed himself.

“ Considerin’,” old Wiggins said, “ considerin’ we was eighty mile an’ more from the Gib’ (this was the flippant syllable, gentle reader, the antiquated son of the sea used in naming Great Britain’s grandest rock-fortress), “ he rayther thought the gen’leman ’d look long enough before he seed it.”

At this moment the quarter-master was called to the bridge, and we loungers by the wheel-house observed that the African coast, which had been visible for a time, was now fading out of the horizon, while the Spanish side of the Mediterranean was again coming into view, and when the imposing line of Almeira Mountains (Fig. 82) in Granada was reached, the lovers of Alpine scenery on board acknowledged the richness of the treat which in every one’s opinion might

perhaps be equalled but scarcely surpassed. From the deck of the steamer, after a short interval, the highest peak, the Malahacen, a majestic cone of 12,000 feet, and the sister pinnacle named Peccacho Voleta, not much inferior in altitude, became so admirably distinct that they and their snows were without difficulty transferred to our sketch-books. The Sierra Nevada range, in which these grim giants form the culminating points, is a ragged, uncouth-looking mass of comparatively naked rocks, seemingly jostled together in the most picturesque confusion. After gazing for hours upon this grand evidence of the forces of nature exercised at some remote period of the world's history, it felt an inexpressible relief to the eye to rest for a moment on the little town of Malaga, nestling apparently at the base of those stupendous crags. The city of raisins is a long way from Malahacen's giddy precipices, but viewed from the sea at a distance of some leagues, the mountain and town seem almost contiguous.

After Cape Gata had been passed the remainder of the day was spent in edging towards the African shore, where, as the shadows deepened, the lights of Oran, a thriving municipal town and sea-port of Algeria, appeared.

This prettily-situated, walled, and fortified place, was built by the Moors, and formed part of the Kingdom of Fez. It was seized by Spain in 1509, by Turkey in 1708, and again by Spain in 1732. In 1791 it was so injured by an earthquake that it was abandoned by the Spaniards, when it fell into French hands, and is now incorporated in Algeria. The chief trade done is in grain, cotton, tobacco, and wine.

Still later in the evening the wind rose to almost a gale, yet, although the ship pitched and rolled about nearly as much as in the Bay of Biscay, no further sickness occurred, and Neptune, this time, was disappointed of his tribute.

Words are wholly inadequate to depict the dawn of our eighth morning on the sea. It was one of superlative splendour in a region where nearly every sunrise is entrancing.

The glow and play of colour upon the thin, fleecy clouds,

the limitless expanses of golden yellow merging into vast oceans of gorgeous orange, and these fringed and crossed diagonally by streamers of crimson lake, vermilion, and pale green, all ultimately losing themselves and becoming absorbed in the intense blue of space, presented a momentarily changing study fit for the greatest painter to spend a lifetime over, yet one to which no artist, however eminent, could do even the scantiest justice. The steamer had now crossed the meridian of Greenwich, consequently the clocks and watches on board were put forward about quarter of an hour. During the morning, the long, rugged heights of Algeria came well into view, and Tenez, Port Shurshall, Ras-el-Amish, and the town of Algiers presented themselves to the eager scrutiny of the passengers. Presently the grand mountain mass of Muzaia, 5125 feet in height and reminding one strongly of our own Scottish Ben Nevis, attracted every telescope. It towers in a district rendered interesting from the legend that it was from thence Saint Augustine set forth upon his mission of evangelisation. The sumptuous morning colours, the advance in time, and our proximity to burning Africa, all admonished us to throw off the winter clothing of the dismal climate we had recently left, as we were entering a zone of extra warmth ; warnings which were confirmed practically in less than an hour, by the steamer passing through what was graphically pronounced by the Captain to be "the tail end of a sirocco." At first the feeling was simply that of heat ; then came a sense of oppression followed by the bursting out of copious perspiration from every pore ; and finally a sense of overpowering lassitude which interfered with all exertion either mental or physical, lasting during the remainder of the day. But no one seemed any the worse ; indeed this day's parboiling appeared to complete the cure from biliousness and headache which the rough treatment in the Bay of Biscay began.

A respect for the proper observance of Sabbath is wholesome and to be commended everywhere, and in no situation

is the feeling more desirable than on board ship at sea. On the present occasion it formed a source of gratification to all the passengers to find, that the evening of this hot Saturday was devoted to making preparations for the steamer's arrival at Malta on Monday morning, so as to leave the intervening day of rest free. Chains, winches, shears, and booms were rigged up and arranged for the discharge and reception of cargo; and there was an air of hearty willingness on the part of the crew as they pushed through their extra work, which showed that they quite appreciated the object to be gained.



Gallo. Gallia. Mount Guardia. Gallina. Galitona. Aguglia.

FIG. 2.—GALITA ISLANDS.

Earlier during the day, the officers had ventured upon a prediction, that before night the passengers would be near enough to the Gulf of Tunis for the site of ancient Carthage to be seen; but, like many another human prophecy, it was not fulfilled. Meanwhile Cape Ferro had been passed, a picturesque, rugged, irregular stretch of volcanic crags as unyielding looking as iron—hence probably its name—terminating in an egg-shaped cone distant from the mainland about twenty-five miles. After the mid-day observations were taken, the steamer reached the curious group of rocks known by the general name of the Galita Islands (Fig. 2). The principal one is twenty-seven miles north of Cape Negro,

belongs to Italy, seems to be almost devoid of vegetation, and has no harbour ; but it supports one Arab family, who subsist upon the produce of their goats and fishing. The other islands of the cluster are Gallo, Pollastro, Gallina, Galitona, and Agnolia, all situated near each other and lying off the western boundary of Tunis. Those islands are in themselves interesting and picturesque objects, and well worthy a place in the sketch-book, particularly when seen under the ruby glow of the setting sun.*

The steamer had now reached the specially volcanic region of the Mediterranean, and the climate and temperature

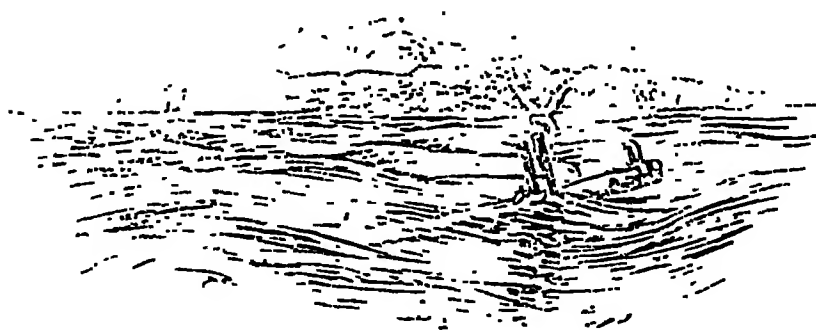


FIG. 3—PANTELLARIA (ITALIAN VOLCANIC ISLAND), S.W. OF SICILY.

proved exquisite. Pantellaria (Fig. 3), one of the loveliest islands in this charming inland sea, had been in sight from an early hour of Sabbath morning when fully forty-five miles distant. At a later hour the ship had crept up to within three miles of the shores, so that with glasses the details could be seen. It is an irregular, oval mass, with gently rounded and sometimes steep, vine-covered slopes

* Since the above observations were made, the captain of the steamer "Ardanzoni" reported, that on the afternoon of the 30th August, 1886, in clear calm weather, when about fourteen miles distant from Mount Guardia, he saw this supposed extinct volcano in eruption, with smoke being ejected at intervals from the crater. (See Fig. 2.)

tending in various directions, with most of the available surface under cultivation. From the nearest point of Girgenti in Sicily, in which its acreage is included, it is distant sixty miles; it measures about thirty-six miles in circumference; and the higher of its twin pinnacles rises to the height of 2730 feet. At the north-western extremity is the little Italian town of Oppidolo, having a small port and lighthouse defended by a castle and batteries. Like most Oriental towns, its buildings are pure white and flat-roofed, and these showing against a background of rich and abundant foliage, of divers colouring, of varied surface, and with the distance occupied by the dark blue Mediterranean, ought to render both town and suburbs as welcome objects for the artist's canvas, as its delightful glens and glades are said to be to the wealth and beauty of Italy.

"An' oh! sir, such cuddies an' grapes as they have there," remarked the enthusiastic old quarter-master, who had been gazing from the binnacle upon a scene which he must have lingered over a score of times before.

"Such cuddies an' grapes, sir! Talk o' the white asses o' Palestine, an' the vines o' Eschol! Pantellaria can beat them baith."

The ancient name of this beautiful island was Cossyra, and the ruins of the old town are still visible in a pretty valley to the south-east of Oppidolo. Near the summit of one of its two conspicuous mountain peaks is the only natural curiosity to be seen. It is a lake ninety feet deep, occupying an old crater. There are besides a few hot springs constantly bubbling forth, and giving evidence that volcanic activity is only in abeyance.

By the time these notes had been made, the preparation for Divine Service in the saloon was completed, and after the bell had ceased its mellow and musical invitation, all the passengers, the officers not on duty, and the bulk of the crew attended. The reverend gentleman already alluded to, with his maimed arm in a sling and suffering considerable pain, read the appropriate lessons and preached a

short, impressive sermon, which was listened to with all becoming decorum and interest. His remarks were based on the second chapter of St. John, particularly the third and fourth verses—"And when they wanted wine, the mother of Jesus saith unto him, They have no wine. Jesus saith unto her, Woman, what have I to do with thee? Mine hour is not yet come." The clergyman said, among other remarks, his hearers would remember that the mother of our Lord is represented in Scripture as having several times interfered when in company with Christ in a manner which called forth immediate rebuke. Nevertheless this habit of hers, although always censured at the time, seemed to be the principal authority the Roman Catholics offered for their practice of Mariolatry. We were now in a region where this objectionable superstition held full sway, and where the population provided an apt illustration of neglecting the substance for the pursuit of the shadow. The reverend gentleman also made some remarks on the blighting effects of Mohammedanism, but was of opinion that the days of this fraud on humanity were numbered.

Unfortunately, there being no musical people on board, we had no hymns, and the service was concluded in about half-an-hour. It was an exceedingly pleasant experience, and those of us who were of a different party in politics forgot for the time such mundane matters in hearkening to the eloquent words from the lips of this fine old Tory clergyman, who did his duty well in the midst of his own sufferings.

Towards the afternoon several glimpses of the island of Sicily were obtained, and, when the slight land breeze cleared away the haze, the summit of the cone of Mount Etna, snow-streaked and ghostly, loomed dimly beyond the line of the horizon fully ninety miles away. Up to this time such satisfactory progress had been made by the steamer that our arrival at Malta would have happened during darkness at an inconvenient hour. It was therefore decided by the captain to reduce the rate of speed, so as to reach the grand island fortress at dawn.

The easy motion the steamer now assumed proved eminently favourable for letter-writing, and the posting-up of diaries. Accordingly, as soon as the dinner table was cleared the interesting spectacle was seen of the simultaneous appearance of a number of writing-desks, earnest students, and a large display of blank paper. In one corner by himself sat the rhymster, deeply pondering, and making occasional surreptitious dips into a maroon-covered fat little volume, which one of the ladies maliciously remarked under her breath, bore a suspicious resemblance to Dr. Longmuir's Rhyming Dictionary, or the venerable C. J. Smith's collection of synonyms and antonyms. The student of Greek antiquities was busy writing, and consulting a large map of the Archipelago; the business gentlemen were adding the finishing touches to connubial communications intended for their doubtless anxious wives in England; and the rest, as is generally the case in similar circumstances, plunged their pens very frequently into their ink-bottles, and made a great many surveys of the ceiling in search of ideas, before either their letters or diaries bore many ink-stains.

As the night proved calm and clear, most of the passengers trode the upper deck for a little before turning in, and were rewarded by seeing Goza light at 9.15.

On previous occasions some of the party had already visited Malta, but in every instance this had occurred at night, or late in the afternoon; consequently, the splendour of a cloudless sunrise over the vast cream-coloured stronghold proved a fresh experience to all of us. From an early hour the steamer had been sailing along the coast of Goza, an egg-shaped island twenty-four miles in circumference, situated about four miles from Malta, and forming one of the three of which the group consists. When the pilot came on board soon after dawn, the course was changed, and the steamer's head steered for the harbour of Valetta. A few minutes later the edge of the sun appeared on the horizon, and the sumptuousness of the sky tints proved

enthralling. The fortified parts of Malta, including Valetta and suburbs, being of a pale yellow colour or pure white, these first rays lit up the scene with startling, pantomimic suddenness. Glistening with the past night's heavy dew, the great guns reflected the sun's beams upwards into the dark blue starlit sky, while the secondary streaks of light glancing off the higher forts and artillery, then from those higher still, crossed and glinted about at various angles like quick flashes from millions of prisms. Presently the sunbeams took a loftier flight, and caught the windows of the town houses, afterwards those of the upper mansions, and finally the tops of the palaces, spires, and gilded vanes. The brilliant effect was so rapid, so changeful, so dazzling, as to suggest a glimpse of fairyland seen through a gigantic kaleidoscope, rather than the sober picture of a sternly grim British fortress, full of the most potent engines of destruction.

As the Grand Harbour was more nearly approached, it was seen to be alive, even at that early hour, with rowing-boats of every size, shape, and hue, the owners of which were making them dance merrily over the waves, the colour of the latter being now a refreshing pea-green, as contrasted with the deep indigo of the outer Mediterranean. Presently the steamer was surrounded with watermen, and a Babel of tongues waxed clamorous for employment, so that, between the hoarse commands of the officers, the piping of the boat-swain, the "aye, aye, sir," of the crew, the escape of steam, and pattering of many feet along the deck with the huge wire mooring hawsers, all ordinary speech had to be abandoned, for it could not be heard. As we moved inwards, rough sketches in passing were made of the fortified rock of St. Angelo, with the pretty white buildings all over it, Plingherbeb Point coming in on the left, and part of the Vettoriosa Rocks appearing on the extreme right. We had now reached Dragut Point, and were approaching Fort St. Elmo, a massive work guarding the entrance to Quarantine Harbour, doubling which, and passing Riccasch Fort and Thingherbab Battery, the "Sidon" dropped anchor,

and by means of two wire ropes let out from the stern, was warped round by the donkey-engine, and secured to granite posts on the island.

As usual in such cases, when the steamer arrives at a favourable hour, it is customary for the passengers to make up parties to go on shore and view the various sights. Accordingly, after getting clear of a crowd of plump, sturdy beggars echoing the plaintive cry of "*nix mangiare*," or nothing to eat—after more or less wrangling with a pertinacious tribe of guides, carriage drivers, and troublesome mendicants and loafers who infest the Custom House landing, we passed up a steep winding road cut out of the limestone rock, crossed a drawbridge over a deep fosse nicely furnished with orange-trees and bananas, penetrated a sentinelled gateway, traversed a market redolent with odours at once delicious and abominable, and at length reached the Strada Santa Lucia, a street of steps, offering one of the most picturesque features of Valetta. On a hot day the ascent of one of these long vistas of broad stairs may not form a pleasing prospect to the plethoric or lazily-inclined tourist; and one may find an excuse even for the rancorous farewell Lord Byron took of them when he said :

" Adieu, ye joys of La Valette !
 Adieu, sirocco, sun and sweat !
 Adieu, thou palace rarely enter'd !
 Adieu, ye mansions where—I've ventured !
 Adieu, ye cursed streets of stairs !
 (How surely he who mounts you swears !) "

Nevertheless, to the eye of the artist they afford a never-palling series of studies of animated life of the most varied description. At one time strings of laden donkeys may be seen ascending or descending, accompanied by men of widely-severed nationalities ; at another appears a long procession flaunting banners, carrying objects of Popish superstition, singing some religious chant, and followed closely by a mob of bare-headed enthusiasts, crossing themselves as they pass the carved saints, which look down upon

them from many a sculptured nook. Frequently the steps are occupied by a noisy group of Maltese sailors, boatmen, or fishermen rushing down pell-mell from their morning or



FIG. 4.—ORDINARY MALTESE WALKING-DRESS.

evening meal to spend the remainder of the day or night on the water; and one often sees at the same time a jovial

band of brown, athletic British man-of-war's men, or sailors from merchant steamers, mounting with the alacrity of schoolboys urged by the novelty of the scene, and bent on climbing to the summit ere looking behind them. The elastic-footed Spaniard, with his pork-pie hat and crimson sash, is there also, and by his side leaps his goat, as little to be ignored in his domestic arrangements as the "rint-paying pig" is in Paddy's.

One sees Arab merchants in all the splendours of the desert, as well as the more civilised Moors from Tunis and Tripoli, graceful and majestic in their flowing beards and robes, whose every movement and attitude is statuesque. But probably no object passed on those stairs is more attractive than a young Maltese lady tripping lightly down, enveloped in flimsy black material, and covered with her black silk mantilla. Why black should be chosen is, and probably will always remain, a mystery; but certainly the whole arrangement is piquante, coquettish, and irresistible (Fig. 4).

Unfortunately the pleasing effect of such a panorama of picturesque life is invariably modified and disparaged, particularly to the Scottish Presbyterian eye, by the locust-like swarms of fat, greasy, shaven, animal-looking priests met at every corner. These men are everywhere in numbers surely far exceeding the wants for ghostly council of the poor dupes of Malta, and their very multitude seems to cast a reflection upon the British Government and people for lukewarmness in affording the antidote by not supplying more Protestant clergymen than there are at present on the islands.

The Strada Santa Lucia, notwithstanding its steepness and consisting as it does wholly of steps, was in its time a thoroughfare of great importance. In the year 1851 it was celebrated for its sculptors, who, out of the beautiful, soft, cream-coloured limestone of the country, regularly carved for sale richly-decorated vases and figures, and for its artists in the precious metals, whose filigree gold and silver work

has never been excelled. At the present time it maintains something of its old character, although the chief shops are now found at the top of the hill. Having surmounted the steps the tourist finds himself upon a flat surface, on the right hand of which is the celebrated church of St. John.

There are many objects of interest in Malta, and a sufficient variety to suit the taste of almost every visitor ; still, those which are available for a day's sight-seeing over and above the fortifications, are not numerous. The passing tourist leaves his steamer under strict injunctions to return by a certain hour on pain of being left behind ; consequently, he usually hires a carriage and flits about from place to place as fast as horse-flesh can carry him, seeing a great deal, perhaps, yet remembering nothing. This rapidity of motion is said to constitute the normal state of happiness to which our American cousins look forward with complacency ; but the British traveller, landing at Malta, would be well advised to remain contented with seeing a little of its beauties thoroughly, and trust to having a future opportunity to spend on the remainder.

After posting letters it is but a few steps to the palace of the Governor, and most visitors hasten thither who have been exposed to the sun for an hour or two, to cool down in its splendid marble corridors. This massive building was formerly the residence of the Grand Masters of the Knights of Malta. Inside its two handsome courts are numerous orange-trees, said to be usually hanging with fruit in various stages of development. Among the decorative foliage are the Euphorbia and Hibiscus, and the walls are gay with Clematis, Passiflora, and other kindred climbers in the full blaze of beauty in March. In the outer square an object of some interest is pointed out, an *Araucaria excelsa*, or Norfolk Island pine, of considerable size, planted by Prince Alfred in 1858, when the tree was only seven feet in height. Ascending from the court the visitor is apt to be disappointed with the staircase, but above there is

much to chain the eye. We now reach a spacious corridor giving access to the whole upper part of the edifice, and depicted on the walls, in fresco, are the naval victories of the Knights, the quaintness of the representations inducing many a smile, and carrying the mind back to a period when marine warfare seemed but little beyond its infancy. Old frescoes also adorn the three state-rooms, eight subjects on each, mostly military and naval scenes. The armoury is next in order, where numerous memorials of the Knights are shown, such as the actual pikes, halberds, bows and arrows, and spiked clubs, with which many a Turkish head in the good old days was broken. The other rooms usually visited are the council-room, hung with handsome tapestry, the magnificent ball-room, library, and museum. There is food in abundance within this ancient palace for the architect, the artist, and antiquarian, and on the marble stairs and in the vast corridors a never-ceasing tide of travellers from all parts of the world is always ebbing and flowing, yielding an exhaustless theme for the student of humanity.

Two o'clock is the hour before which Protestant visitors are not allowed admission to the famous church of St. John. It is a massive pile as seen from outside, but it is bulky rather than architecturally striking. Inside, however, the ample dimensions of the enormous vault are as marked as the beauty of the details. The interior is an enormous square hall with a curved and painted ceiling, and the area on either side is divided off into a series of subsidiary chapels. At the side opposite the entrance stands the altar, surmounted by seven massive silver candlesticks, each sustaining a yellow candle some six feet in length. On either side of the altar, resting upon ornamental brackets, are two handsome organs, one of which is used every day, and the other only on special occasions. Large silver lamps hang by chains from the ceiling, and several bronze figures in the area carry candelabra of imposing dimensions and beautiful design. Elegant bronze rails, formerly of solid silver, divide the altar space from the body of the church, and one of the side

chapels once possessed gates, also of pure silver ; but during the period the island was in French occupation, this show of precious metal is said to have proved too strong a temptation for Gallic cupidity, and it was appropriated. About the same period, the covetous soldiery under Bonaparte, denuded St. John's Church of many valuable relics, such as the basin and ewer presented by Henry the Eighth of England to the Grand Master, L'Isle Adam ; the sword and dagger, the scabbards of gold, and the hilts adorned with gems, presented by the Spanish king to La Valette, as a mark of his appreciation of the gallantry of the knight during the great siege ; the silver images of the twelve apostles, and magnificent candelabra ; to the removal of all of which the sacristan who shows strangers through the building alludes even now with words of deepest bitterness. The twelve apostles, however, were afterwards ransomed by an enthusiastic Maltese prelate, and are to be seen at Citta Vecchia. Probably the most unique and interesting features of this handsome fane are the tessellated pavement, and the painted ceiling. The former consists specially in four hundred sepulchral slabs of coloured marbles laid down in memory of the Knights. These embrace heraldic devices, naval and military trophies, representations of musical instruments, angels, martyrs, skeletons, and other curious subjects done in mosaic. The latter, executed by Matthew Preti between 1661 and 1699 on the stone, without the intervention of plaster, conveys to the upward gazing eye the full effect of life-sized figures in relief. Some beautiful tapestry is also shown, which came from the looms at Brussels. When originally sent the valuable consignment was captured by piratical Moors, but was afterwards recovered by a payment of £6000 by the Knights.

Although the islands of Malta are bigotedly Roman Catholic, it is to some small extent gratifying to the Scotch and English visitor to observe, as he walks along from St. John's Church, both Presbyterian and Episcopal places of

worship. I use the word "gratifying" advisedly, as I had learned from a former resident of many years in Malta that the amount of toleration extended to other forms of faith than that of Rome was, up till recently, of the scantiest kind. I had heard numerous stories of the base truckling to Popish forms and ceremonies, which not long ago had been exacted from British officers and Protestant residents. Processions of the Host, every one knows, are frequent in Roman Catholic countries, and when these occurred in Malta up till within late years, all passers-by were expected, and in a sense forced, to do obeisance to the mummary. My informant stated that while living there he often got out of the way when he saw such a procession approaching, rather than submit to perform an act of flagrant idolatry: and that, within his own experience, not many years ago, a British officer of the garrison had been cashiered for refusing to countenance or acknowledge in any degree the Popish pageantry of the streets. There is nothing surprising in this, when we look a little further back into history, and find that the Catholic priesthood of Malta did all they could to prevent the building of the first Episcopal church there in 1839. Queen Adelaide having derived considerable benefit from a short residence in the island, as an act of gratitude, laid the foundation-stone of the collegiate church of St. Paul on the 20th March, which was afterwards completed at the royal lady's expense. Meanwhile, the priests went about bullying and threatening the Government, and doing all they could, without irretrievably committing themselves, to excite and disturb the population. It is said, in palliation, that the maintenance of the Roman Catholic Church, as the established form of religion, was one of the conditions of the cession of Malta to the British on the 15th June, 1802, and confirmed by the Congress of Vienna in 1814; but no one has as yet ventured to assert that Maltese priestly intolerance was also recognised as part of the bargain, or that it included permission for the unlimited fleecing of strangers. Considering that for over seventy

years these islands have been British property; that their population has enjoyed all the rights and privileges of British subjects; that the British people are by an overwhelming majority Protestant; and that the gay old flag which dominates the fortress, acknowledges no earthly superior; it seems almost incredible to us at the present date, that such Popish impertinence, as that alluded to, should ever for a moment have been permitted. The existence now, however, of edifices for Protestant worship is a hopeful feature, and indicates, not that Popery is any more tolerant than it was, but that the rights of Protestants in Malta are now better understood.

Few, if any, visitors who had read of the heroic defence of Malta by the Knights against the Turks during the Great Siege of 1565, but would, after viewing the magnificent church of St. John, in which many of the defenders were interred, feel a longing to see the bastions where their immortal renown had been achieved. The oldest of the forts is St. Angelo, built on the site of a temple to Juno, and afterwards of a Roman guard-house mentioned by Cicero. This was the only place of strength in existence when the Knights first got possession of the islands. They immediately added to its power of resistance and completed the work in 1690. Standing on the upper part of its triple tier of frowning batteries, the tourist may occupy the very spot once held by the Grand Master La Valette, when watching with deep anxiety the terrible assault of the Turks on Fort St. Elmo, nearly opposite. The other forts are Ricassoli, Elmo, with Abercrombie's tomb on the ramparts, and Tighe; which three defend the two entrances to the Grand and Quarantine Harbours. Fort Manoel is inside the latter, and Fort Michael was an old landward work which withstood the Turkish batteries and assaults from the north-west angle of the suburb of Senglea. But to examine these amazing works thoroughly, would consume more time than even our smartest American cousin could accomplish in the course of several days. My party did not make the

attempt beyond St. Elmo. We made a few purchases, took a short drive, and as the day was far spent hastened on board our steamer.

Punctually at four o'clock the "Sidon" screwed out of the Grand Harbour, passing the war-ships "Superb," "Thunderer," and "Agincourt," lurking behind the ramparts of the vast fortress ready for any emergency. From smooth water we quickly found ourselves in a tempestuous sea, and in less than an hour the great island stronghold was invisible.

CHAPTER III.

MALTA TO SYRA AND SMYRNA.

DURING the past few days the clergyman's broken arm, already alluded to, had become so painful and troublesome that the passengers united in advising him to land at Malta with the object of consulting a physician, which he did. The advice he received was to remain on shore for a few weeks until the bones had become properly united, or go home at once by the next steamer. The former suggestion he followed, consequently we lost a much esteemed fellow-traveller and companion, and the Conservatives of the party their Boanerges. Fortunately for himself, the reverend gentleman, being possessed of independent means, and out for a holiday of several months' duration, his enforced stay at Byron's "little military hothouse" for a few weeks would form the chief part of the inconvenience he would require to endure.

For the morning of this our thirteenth day at sea, the object of interest promised to our view by the officers of the ship was Cape Matapan, the most southerly point of Greece and of Europe. It is 387 nautical miles from Malta, and forms the termination of the wild range of lofty mountains known as the Pentedaktylos, about sixty miles in length. The central and culminating peak is Mount Elias, 7902 feet above the sea-level: it is usually covered with snow as shown in the accompanying (Fig. 5) sketch, and is the dominating summit of the Morea. Probably no more splendid object can be seen in Europe than this noble pinnacle, towering as it does in dazzling majesty high above the adjacent high-

lands of almost countless volcanic cones. The entire landscape, as far as the eye can reach, is grand and imposing, yet it displays a scene of terrible chaos and savage desolation, which it would be difficult to surpass. The people who inhabit this wild region are said to be nearly as rough and uncouth as their crags. Nominally Greeks and subjects of King George, they are nevertheless in reality a half brigand, half independent race, acknowledging no monarch or superior, and in their habits and traditions so unchanged all through the centuries that they still speak the language of ancient Sparta, and observe some of the laws of Lycurgus.

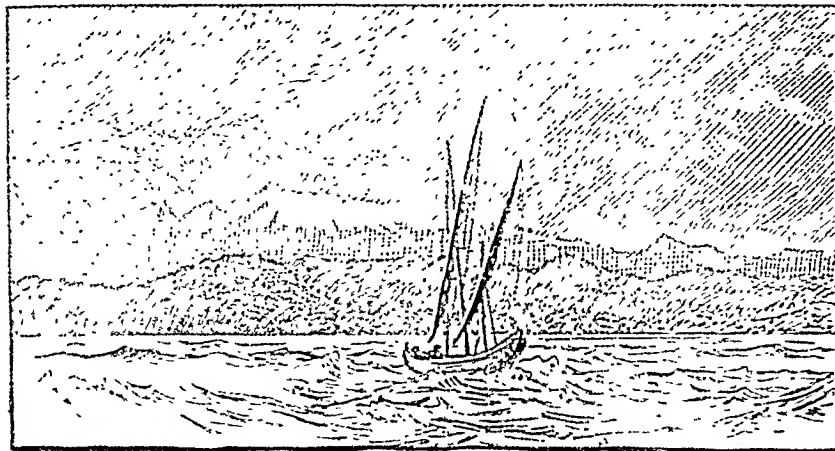


FIG. 5.—MOUNT ELIAS (THE ANCIENT TALEICH)

For the last fifteen miles or so Cape Matapan is a lofty, precipitous, narrow ridge of only a few hundred yards in breadth, washed by the sea on either side and often wholly obscured by vapour. On the present occasion, while in the chief officer's room after breakfast, having a look at the chart and obtaining some information regarding distances, the steamer's whistle suddenly sounded, while speed was reduced by one-half. Scrambling on deck I found the vessel surrounded by a dense fog which had in a few minutes swept down from the wilderness of peaks. Presently quarter-speed was ordered from the bridge, then the engine was stopped altogether, while the mist-trumpet wailed forth its most

dismal and pathetic notes. In this unexpected manner ships are often surprised, and the situation when a fog occurs is rendered all the more dangerous from the fact that most vessels passing either way endeavour to hug the cape as closely as possible, so that usually a considerable number are to be found clustered within a limited area of sea. The position for the "Sidon" was certainly unpleasant while it lasted, as other steam whistles and fog-horns were heard apparently in close proximity on all sides. However, in about an hour the veil of vapour cleared away as abruptly as it had fallen, and the voyage was pursued without further interruption.

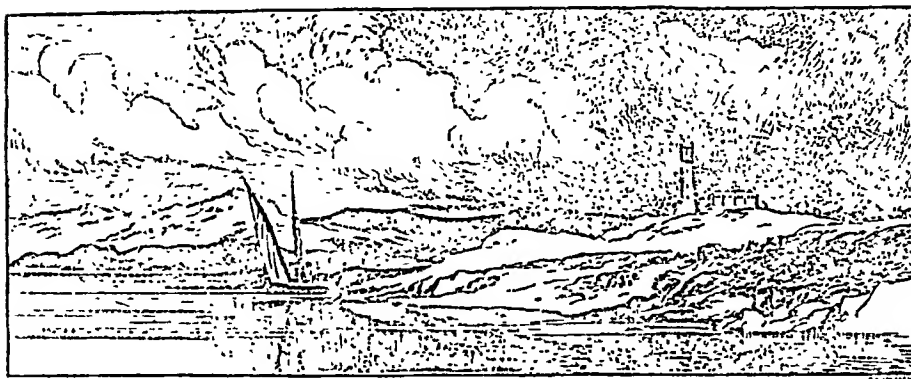


FIG. 6.—ISLAND OF CERIGO.

Getting rid of the fog the steamer's position was found to be about two-thirds across the great indentation in the southern extremity of Greece between Capes Matapan and Malea, known under the three names of the Gulf of Kalamata, Lakonia, and Marathonisi. Ahead lay the almost uncultivated, although once celebrated, island of Cerigo, anciently known as Cythera, some seventeen miles long by ten miles in breadth. In classical times it was held as specially sacred to the goddess Venus, who emerged from the sea into being, according to Greek story, close to its shores, and the island supplied the surname of Cytheraea to that attractive and celebrated lady. The Phœnicians built a temple upon it to Venus, but this erection has probably long since dis-

appeared, as the only buildings now alluded to by travellers are a mediæval castle on one of its headlands, and a light-house on another (Fig. 6). From this point, also, another charming view of Mount Elias was obtained, clothed with snow from summit almost to its base; and a little further a



FIG. 7.—ISLAND OF CANDIA.

glimpse was got of the site of the beautiful stalactite grottoes of Santa Sofia and Mylopotamos in Cerigo. These caves are noted for the fine specimens of porphyry they contain. The island, it is said, might be made to yield more produce than it does, as its 18,000 of a population have many food and other resources. It abounds with hares, rabbits, and

turtle-doves ; quail and other birds are numerous, while the fisheries are very productive ; its grapes, wine, oil, melons, figs, hemp, cotton, and honey are all of the finest quality although scanty, and cereals are grown only for home use. Cerigo forms one of the seven Ionian Islands which were transferred from British protection and handed over to Greece in 1864.

To the left of the steamer was seen the vast gulf running up for some sixty miles into Lacedæmonia ; presently the little barren rocky islet of Cervi or Elaphonisi, nine hundred feet high, was also passed on the left, when, in the course of the forenoon, the massive bulk of Cape Malea, two thousand feet in height, burst for a moment upon our view. It was only for a moment, as the fog came over it, as it had at Matapan, and although it did not roll down and take possession of the sea, or even of the lower slopes, it remained like a night-cap on the mighty headland, and we saw it no more. But as if to make up for this great disappointment, the seascape seemed to brighten towards the south and the atmosphere to get so pure and thin, that the snow-covered mountains in the large island of Candia or Crete, although eighty-nine miles distant, became distinctly visible. (Fig. 7.)

It was of course impossible for any of us to sketch Cape Malea as a whole, but we were presently interested in a curious valley near it, which caused some lively discussion on board as to its probable origin. A portion of the shore seemed strewn with ponderous pebble-like blocks of limestone, each hundreds of feet in height and mostly standing on their bulkier ends. As the view changed with the motion of the vessel, the confused-looking masses assumed the appearance of Druidical remains ; then the individual stones lost their distinctive character, and appeared to be simply so many pinnacles of hard rock projecting from a general rocky surface, from which the softer stone and soil had ages ago been washed or torn away by the action of water or ice.

Near the extremity of Cape Malca, sometimes called Cape Angelo, and three hundred feet or so up the face of the rock, is the hut and chapel of a hermit (Fig. 8), who for many years saluted passing vessels, by waving a white flag, having a black St. George's cross embroidered on it. On the present occasion he did not appear, although the steam whistle was blown and the ship sailed very near.

Later during the day, the steamer passed within sight of Melos, the most westerly of the group of islands known as

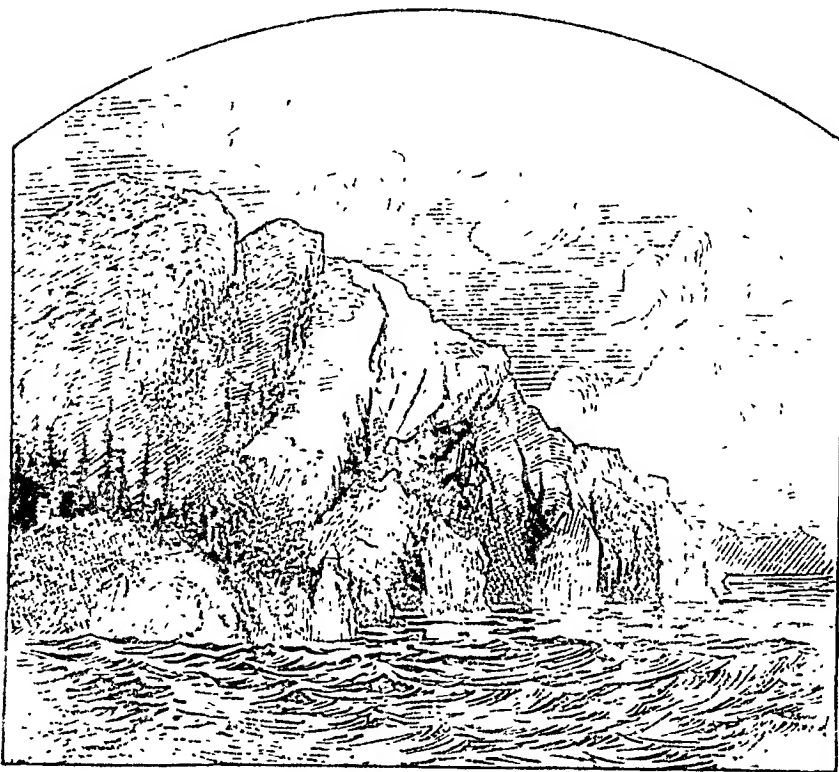


FIG. 8.—HERMIT'S CHAPEL. HERMIT'S HUT. GROTTA. CAPE MALEA.

the Cyclades. It is a picturesque-looking country measuring fourteen by eight miles, and possesses one of the finest harbours in the Mediterranean. Although but moderate in size, it has an important and interesting history, reaching back to the remote period of 1116 years before the Christian era. At that date it was first occupied by a colony of Lacedæmonians, and it enjoyed a state of perfect inde-

pendence for 700 years, or until the conclusion of the great Peloponnesian War. Having refused to join in this struggle, which would have brought them into collision with their own countrymen, the irritated Athenians at the end of the war made an attack on Melos, killing all the males capable of bearing arms, sweeping away into slavery the women and children, and leaving the island utterly desolate behind them. It was afterwards repopled by an Athenian colony which in turn was destroyed by Lysander, who restored the survivors of the original inhabitants. Although there may be little to rivet the fluctuating attention of the ordinary tourist, except the hot springs, the sulphur mines, and the

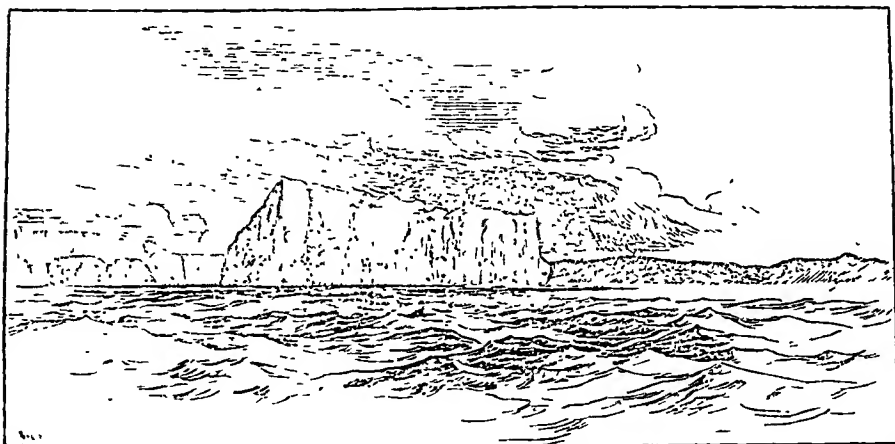


FIG. 9.—KARAVI—ROCKY ISLET.

volcano Kalamos, still in a semi-active state; yet it will not be forgotten by the scholar, the antiquary, and the artist that the beautiful Venus de Milo, now in the Louvre, was found in this island, and that there are doubtless many equally valuable mementoes of ancient art still earthbound.

The course of our ship now lay between the picturesque islands of Seriphos and Siphnos, the latter so healthy, that some writers allege that people there commonly live to the age of one hundred and twenty years. A few miles further revealed the rocky crag named Serpho Poulo, noted in mythology as the island where Perseus petrified the inhabitants by the exhibition of the Gorgon's head. The stony

charm appears to be exhausted in this later age of the world, as there are over three thousand industrious persons there, who make a living out of the valuable deposits of rich iron-ore they mine, most of which is sent to Great Britain.

Other islands and notable rocks were seen both earlier and later during the day—all picturesque and worthy the sketch-book. Among these occurred a singular rock named Karavi (Fig. 9), rising out of the sea to the height of one hundred and ten feet from an abyss of two hundred fathoms. It is one of three islets situated in the track of steamers sailing between Cape Malea and the Zea Channel, and derives its name from its supposed likeness to a ship under full sail. The other isles are Belo Poulo and Falconera, the last appearing in the text of Falconer's poem of 'The Shipwreck.'* Those islands are evidently the summits of submarine mountains, which have sunk on account of the crust of the earth collapsing during some prehistoric volcanic disturbance. The depth of water near them is from one hundred and seventy to five hundred fathoms.

The second section of the voyage was completed by the arrival of the "Sidon" on the fourteenth day in the convenient harbour of Syra, an island ten miles in length and five in breadth, belonging to Greece. Although there is not much to reward the visitor on shore in the way of picturesqueness, the view from the sea (Fig. 10) of the double town rising up the steep face of twin crags is certainly pictorial, and the mixed land- and seascape as surveyed from the portico of the Greek church of St. George on one of the eminences, comprehensive. The houses and public buildings being nearly all pure white, some of them faced with marble, flat-roofed, and

* William Falconer was a Scotch poet, son of an Edinburgh barber, and brought up to the sea. About 1751 he published several efforts, and among them his chief work 'The Shipwreck,' a poem in three cantos, suggested by his own experience when wrecked on a voyage between Alexandria and Venice, during which only himself and other two of the crew were saved. He was afterwards lost along with his ship the "Aurora," in the Mozambique Channel in the winter of 1769.

abundantly supplied with growing flowers in many tinted pots, vases, and balconies, the combined effect is fairy-like by day ; and when the twin rocks glow with thousands of tiny lamps after sundown, the witchery by night is even more complete. Malta has an air of solid, massive grandeur ; it is stupendous in its show of ponderous strength. Syra impresses the beholder rather with the idea of a place thrown airily together, in a freak, by playful spirits.

Although the pretty twin towns of Old and New Syra present little to the close inspection of the visitor, the

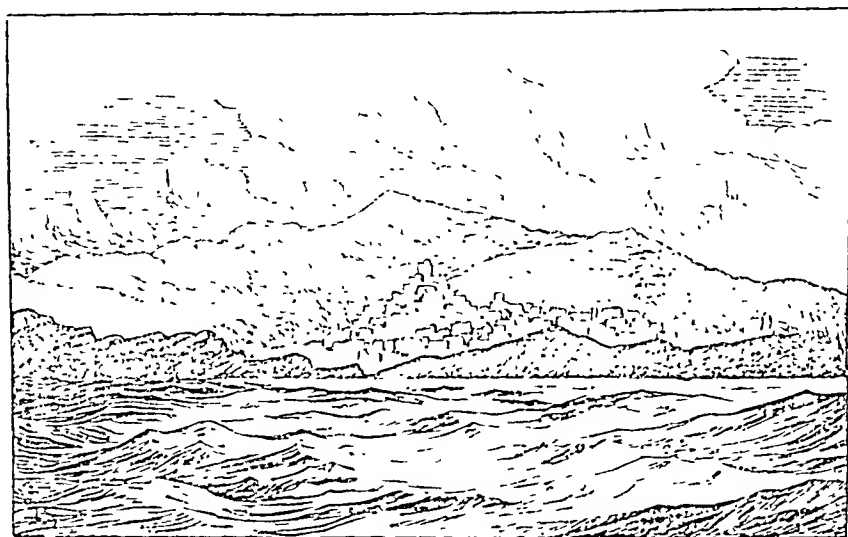


FIG. 10.—APPROACH TO SYRA FROM S.E.

quays are well worth rambling over. Steamers and ships of all nations are usually to be found in the harbour, moored with their sterns towards the shore. Merchandise of every kind is exposed for sale in the open air, and as buyers and sellers appear to be equally numerous and eager to trade, the noise of traffic is as unceasing as it is energetic. Seeds, vegetables, and fruits of all sorts meet the eye at every turn ; sellers of fish, flesh, and fowl seem to monopolise more than a fair share of the market area ; drinking-saloons with numberless little round tables claim the side paths without fear of challenge ; money-changers with their wire-

covered cases of coins get wedged in wherever there is a yard or two of vacant space; while all over an ever surging crowd of the baggy pendant-trousers of Greece, the smart naval-jackets of Britain, and the ample robes of Hebrews, Turks, and Arabs, meander; the owners evidently possessed with some object, yet in no particular hurry to attain it. Good nature and even benevolence appear to be the normal expression of every countenance, so it was with a species of shock that I suddenly came upon a display of inhumanity which is hereby brought under the notice of the "Syra Society for the Prevention of Cruelty to Denizens of the Deep," should such an institution exist. A fisherman, surrounded by a delighted-looking mob, was torturing an octopus. The creature was of some size, and in its defence had already squirted its sepia all over the faces of its brutal assailants, whose classical features were thereby far from improved. As I passed, the unfortunate octopod was having its head slowly hacked off with a blunt knife, while different weapons were inch by inch curtailing its long, sucker-covered arms. It was a truly degrading spectacle, showing how much of the fiend may sometimes be found allied to a high type of human beauty, and I regretted my ignorance of the Greek language, as I might have interfered to stop, or at least have remonstrated against, the exhibition. Scenes of such a revolting kind, it is to be hoped, are not common, as the Greeks, from the peasant to the peer, are allowed on all hands to have become greatly improved in every sense, from what they may have been after centuries of subjection at the period of their insurrection against the Turks in 1821. In Syra, as elsewhere, the national characteristic is now a keen thirst for knowledge, and an almost feverish desire for the thorough education of the children. In this little island, maintaining in all 22,000 souls, more than 3,000 scholars daily attend the various training establishments.

Unlike most of the neighbouring islands, Syra seems to possess no history, and it can show no antiquities, if we

except the circumstances that Pherekydes, the tutor of Pythagoras, was born there, and that vestiges of temples, supposed to have been dedicated to Poseidon and Amphitrite, have been seen. It is essentially a great entrepôt for trade, and the inhabitants are all business men, consequently, the island is, and has long enjoyed the reputation of being, orderly and well governed; indeed, it is said that the Customs duties collected, form a very considerable portion of the revenue of Greece. Syra is at present reckoned the chief island of the Cyclades, the seat of government for the group, and is the residence of a number of foreign consuls, yet it seems to have been almost unknown prior to the Greek War of Independence. In Homer's 'Odyssey' it is merely alluded to as "rich in pastures, in herds, in wine, in wheat;" but it seems hardly to have attracted the sculptor, or offered much encouragement to the architect of either temple, circus, or theatre. Such being the case the tourist, after a ramble through the streets, and mounting the four hundred steps to get a view of the harbour and islets from the church of St. George, finds little to detain him; and if the one hundred tons or so of emery-ore or corundum, which most British steamers find waiting for them, have been shipped, the vessel will speedily trip her anchor and steer for the Gulf of Smyrna.

Passing out of the harbour, as I did, on a moonless night, the singular charm of the place as an artistic spectacle was truly captivating. Abruptly rising from the water on two adjoining hills, stand the two older of the ecclesiastical buildings the island possesses—one a Greek church, and the other a Roman Catholic fane. "When, on festal nights," said one of the ship's officers with an imaginative and spectacular turn of mind:

"When, on festal nights, these buildings are lit up, in addition to the brilliant twinkling all over the twin towns; when the strains of the organ and the voices of choristers are wafted softly downwards from those airy heights over the illuminated crags—we rough sailors, not to speak of the

newly-arrived passengers, may well be excused if we rub our eyes and ask if it be not all a dream."

On the sixteenth day from leaving Liverpool, this interesting voyage was concluded. Early during the morning, the "Sidon" had got within a land-locked bay of more than thirty miles in depth, and closely resembling a Scottish loch on a large scale.

Leaving the volcanic island of Khios behind, the steamer had rounded Mimas Peak, on the Kara Bournou peninsula, a splendid landmark for ship-masters, 1724 feet high, and was now churning its way past the islands in the Gulf of Smyrna. In a short time the peak also was in rear, with the sky and sea lit up by the orange glory of the rising sun. The mountains on either side gradually disclosed their rugged and time-worn features as they became warmed by the glowing orb of day. Quickly the white sails of the fishing-boats appeared to dart to and fro over the crystal expanse, while in the far distance pyramids of salt, piled high on the further beach, gave notice that the haunts of human labour were not far off. Keeping well in towards the western shore, the steamer soon reached the old ruinous Genoese battery named Sanjak Kalissi, where a temporary stoppage was made to obtain "pratique." The detention was trifling, as steamers arriving from British ports rarely trouble the Turks with infectious disease, yet the delay was sufficient to enable our sketchers to rub in hurriedly a few of the salient features of the scene. The fortress is admirably placed in order to command the only entrance there is for large vessels into the bay. Anchored a little way off is a light-ship, which marks the end of a shoal caused by the River Kodus. This spit of sand runs across the bay, leaving little depth of water in many places except at the spot marked by the castle on one side, and the light-ship on the other. The gate thus available is narrow, so that long-range artillery in the fortress is scarcely required. Nevertheless, it might be worth while for the Turkish authorities to mount one or two heavy guns of modern

manufacture on the new bastions in progress, in place of the ancient articles, with their bullets of granite and marble,



FIG. 11.—AGAMEMNON'S BATHS, SMYRNA, ASIA MINOR.

our glasses showed plainly from the steamer's deck. While passing the castle a good view of the country beyond was

obtained. It is very fertile and early, on account of much subterranean heat ; so much so that melons, cucumbers, and grapes are furnished by this little peninsula before any other part of Asia Minor. In a cleft of the mountains near are the Baths of Agamemnon (Fig. 11), which I afterwards had an opportunity of visiting and sketching. Locally those hot springs are known as the Lidja of Balgora Ghikikiov : the first word meaning—"the plain belonging to the honey-sellers ;" the second—"a ruined village ;" while "lidja" is the recognised Turkish expression for "mineral baths." The village was formerly occupied by prosperous peasants, but after the termination of the

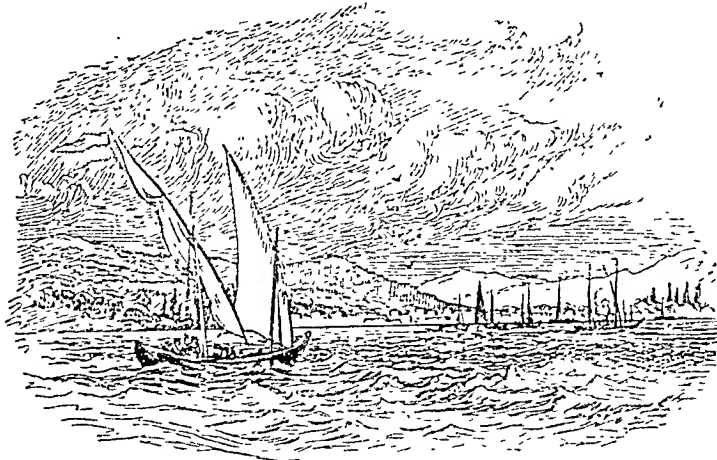


FIG. 12.—FIRST GLIMPSE OF SMYRNA FROM THE BAY.

Crimean War, when so many wild soldiers were let loose in Turkey to become reavers and freebooters, the welfare of the people was destroyed by frequent forays of brigands. Since then these marauders have been suppressed, and the neighbourhood is again full of industry and is flourishing.

The progress of the steamer now seemed to be more rapid, at all events, village after village was speedily passed. Karatasch, Guistuppi, and others were left in rear, and at length Old Smyrna burst upon our view, like a delicate line of white, on water of heavenly blue (Fig. 12). In a surprisingly short time, the "Sidon" was moored alongside floating

pontoons in the harbour; letters were delivered on board by the obliging agent of the Cunard Company; the men who had been most industrious in the keeping of diaries rushed off to supply themselves with fresh blank volumes at the nearest stationers; one of the ladies, unable to secure companions on such short notice, made tracks for Ephesus alone; while I bade my fellow-passengers farewell, and, along with my Smyrna friends, went on shore.

CHAPTER IV.

PRELIMINARIES OF THE SILK HARVEST.

It is hardly judicious in any traveller in this age of mature intelligence to rush into print with crude first impressions of places he hopes to become better acquainted with by-and-by. Accordingly, at this early stage, I refrain from presenting any remarks regarding the ancient, active, and picturesque town of Smyrna, where I arrived on the 14th of March. At the same time I feel that my acknowledgments should not be delayed of the hospitality I subsequently received from Mr. John Griffitt, of Bournabat, his relations, friends, and acquaintances in and around Smyrna; of the courtesy of the Turkish authorities in providing facilities and protection for travelling in the interior; and of the kindly forethought which dictated the forwarding to me, ere I had been more than a couple of days on shore, of cards of membership for both the Greek and European Clubs.

One of the objects of my visit to Asia Minor on the present occasion was to go through the intricacies of an entire silk harvest—from the budding of the mulberries to the gathering of the cocoons and reeling the silk. As this object was accomplished through the early hatching of the silkworms in some districts, I shall offer no apology for now introducing the reader to a picture of what I saw of the preliminary stage of an industry once of vast importance to this part of Turkey, subsequently almost annihilated through the ravages of disease, yet latterly being

revived and restored by the unwearied, hitherto unremunerated, yet ungrudged efforts during more than thirty years of the distinguished English gentleman already named.

Before entering upon the special subject of this chapter—the annual distribution of silkworms' eggs to the small farmers and peasantry of the villages and towns around Smyrna—it may be desirable to remark that, notwithstanding the all but entire freedom from disease latterly attained by the commercial *graine* reared by Mr. Griffitt at Bournabat, a long course of disappointment, spread over many years, in the use of French, Italian, indigenous, and other eggs, had soured the peasantry at the whole industry, so that the introduction of the regenerated race, even without charge, was for many a day regarded by the sericulturists with sullen suspicion, and Mr. Griffitt's philanthropic advances met by aversion or derision. Fortunately for them, this era of ignorant, yet very pardonable hostility, was of short duration, as steps had been taken to conduct a silk-farming enterprise upon a small scale within Mr. Griffitt's own premises, under his own eye. To witness the success of the operations, high Turkish officials were invited. They came and were convinced. Small farmers and peasantry afterwards dropped in from time to time, by twos and threes, to wonder at and admire the triumphs of science they saw. Europeans and Americans, in passing through Smyrna, helped to swell the eager throng ; but under all the excitement, the doubts, and dismal prophecies, the presiding genius and his amiable and accomplished wife, steadily held on in the path they had laid down for themselves, and many of their visitors, who probably came to scoff, retired astonished and pondering.

Such was the state of affairs a few seasons ago ; so it can hardly astonish the reader to be told that the fame of these regenerated eggs having spread far and near, as the end of March approaches, the weather every year becomes the subject of as great anxiety to the silk-growers of the Smyrna district as it is at all times to the British farmer, and Mr.

Griffitt's probable supply of *graine* for distribution as pregnant a topic for village speculation as the growing crop of cereals at home is to the corn magnates of Mark Lane.

On the present occasion the distribution of *graine* commenced in the village of Hagelar, about four miles from Bournabat, on the 16th March; rather earlier than usual on account of the warmth and geniality of the spring, and the evidences of immediate budding in the mulberry trees. The way thither lay through a well-cultivated country, dotted with numerous olive, fig, vine, orange, and other trees and shrubs, the last-named still gorgeous with some of the previous year's golden fruit. Stopping at the entrance to the village, the first house visited had for its guest-chamber a very clean airy room, with a long couch at one end, and a loom at the other. Katernee (Catherine) and her daughter, with some bright black-eyed Greek grandchildren, gave us an effusive welcome, all talking at once. How their eyes glistened when the little perforated, orange-coloured boxes, containing the precious eggs, were produced, and how the musical modern Greek language flowed from their lips in terms of the liveliest gratitude. Truly, I thought, if my friend reaps no other advantage than this, he is already amply rewarded.

The next cottage entered contained, as before, a grandmother and her married daughter, known in the village as Jamuditaza, or "the mite of the ally," otherwise "John's little one," or "the tiny pet of John." There were several little girls of an olive hue, with eyes and hair of the intensest blackness, gaily trousered, squatting cross-legged on thick carpet cushions on the floor, engaged in embroidery work, and the smaller ones in dressing dolls. One or two older children sat on a couch doing crochet work with all the deftness of Western fingers. High up on the wall were several pictures of saints familiar to the Greek calendar, illuminated by a constantly burning lamp. This, it was explained, was not an act of superstition, but simply one of veneration towards great ones of their Church who had

lived and died in the esteem of their countrymen. Although evidently a superior family, and favourites of Mr. Griffitt, he gave them but a small quantity of eggs, knowing that their command of leaves and other facilities for a successful "education" * were limited. Then followed the kindly adieux. "Take care ; be diligent ; think of the nice winter dresses you will all get out of this little box by-and-by," said Mr. Griffitt, as we recrossed the threshold.

An elderly woman seemed at first the sole occupant of the next cottage. The room into which we were ushered was a large, airy, attractive apartment, containing a gigantic couch fully fifteen feet long, covered with white cotton in such a manner as to reveal at intervals the hidden silken splendours beneath. In the middle of the room stood a picturesque apparatus, about four feet in height, of highly-polished copper (Fig. 50). It proved to be a brazier for holding a pan of glowing charcoal, and as the day was getting a little cold, the ignited fuel was soon placed in position, and it speedily diffused a pleasant atmosphere around. Following the charcoal pan came a handsome young Greek girl, Katernee, in her beautiful national dress, with much scarlet about it. She carried a tray of refreshments, preserved citrons, glasses of water, and the necessary number of silver spoons. Each of us was expected to take a spoonful of the sweetmeat, then a drink of water, leaving the spoon in the glass, which we did with the musical words, "*Kali emara sas Keyrea f-acharisto*," meaning "Good morning, lady, and thank you." The little incident seemed to me most graceful, and, considered in connection with the accessories of the house, the taste everywhere, the well-kept mirrors, the silver cups here and there, the handsome lamps, and the kindly manners, showed the family to be somewhat above the others we had visited in station.

Next in order came an establishment of even greater

* For the benefit of the non-professional sericulturist it may be explained that the word "education" is that used by the French silk-farmer to denote the breeding and rearing of silkworms.

pretensions, yet affording an illustration that fine appearance is sometimes deceitful. Three years before, the inmates had behaved falsely, and Mr. Griffitt had determined to pass them over in the distribution; but as they were all on the alert at the door as we were going by, and expressed the utmost penitence for their past misconduct, they were given some *graine*, accompanied with many a moral precept.

By this time the news of our arrival had spread all over the village, so that at every corner we were waylaid and pounced upon by the eager wives and daughters of Hadjes and the descendants of Athanaseus. There were the pretty Mersos (Myrtles), the handsome Marigos Basilios (Marys, daughters of Basilios), and numbers of others with musical names, all anxious, and indeed determined, to obtain the coveted treasure, and vociferously urging their claims founded upon the number of mulberry trees they possessed or had rented. Some wanted more *graine*, some less; all were prepared to take more than their allotted share, but the distributor was firm. He knew from former experience and recent inquiry how much to give; he thoroughly gauged their facilities, their characters, and their general abilities. They got from quarter of an ounce to as much as an ounce and a half, according to a prearranged tariff, each family receiving a sheet of copious instructions printed in Greek; and so the lively and interesting scene went on for hours.

The next theatre of operations was the picturesquely-situated town of Magnesia, snugly nestled in a nook of the Sipylus mountains, and affording, it is said, one of the prettiest pictures to be found in Asia Minor. It is forty-one miles from Smyrna, is a handsome place in every respect, it contains about 50,000 inhabitants, and is easily reached in about two hours by railway. No less interesting are the scenes and places along the line. We took our seats in a second class carriage at Smyrna, a day or two after returning from Hagelar, surrounded with great baskets of *graine*, and had for fellow-travellers no less important personages than

Hassan Effendi, a nephew of the present Turkish ambassador at Paris; Mons. Publi, a distinguished Armenian lawyer, practising at the Smyrna Bar; M. Mavroidhy of the American Consulate, and others. To these gentlemen I was indebted for some of the information which follows—information due, doubtless, to my telling them what I had come to Asia Minor for. It was not to spy out the nakedness of the land, I said—it was not to criticise and find fault after my return; but to see all that was good and praiseworthy, picturesque and charming, and to write home about what I had seen, mail after mail, whilst I remained. They were evidently gentlemen, they believed my words as translated by Mr. Griffitt, whom they all knew well; accordingly we became quite friendly, and had a most pleasant trip together.

The first object of interest the eye rests upon after the carriage door has been shut, with a kindly good-bye from Mr. Hutton, the station-master, and the train has moved on a little way, is the site of the ancient town of Smyrna. There does not seem to be a stone of it remaining; the area is used as a vast cemetery, and the space once occupied by the port is a shallow swamp. It may be interesting to the reader to be reminded that this swampy expanse is believed to have been occupied by the Smyrna of the ancient geographer Strabo, and was the second town of the same name. The site of the first cannot be demonstrated with historical accuracy; still there are fair grounds for supposing that the first Smyrna—said to have been founded by an Amazon, or by Tantalus, a son of Jupiter—lay upon one of the lesser heights above the modern village of Bournabat, situated about four miles from the present great commercial Smyrna of the Levant. Some two miles from Bournabat there are Cyclopean remains near a stream which some scholars think correspond fairly well with classical descriptions of the Homeric Meles,* upon the banks of

* In Chapter XV. the reader will observe that the name "Meles" is applied to a different stream, namely, to the short and canal-like

which the blind poet is said to have been born. Among these relics tradition indicates Homer's tomb; a little further off is the pretty lake in which Tantalus was doomed by the gods to the perpetual expiation of his thefts and other crimes; and among the tumuli and remains at Bournabat his sepulchre is shown. It may also be mentioned that the first Smyrna was destroyed in the year 627 B.C. by Alyattis, father of the wealthy Cræsus, king of Lydia; that the second city, written about by Strabo, was built by Antigones and Lysimachus, two of Alexander's generals, by order of the great conqueror; and that the modern Smyrna has to some extent risen out of its ruins.

Skirting the gulf is seen the village of Cœur de Lion, where that redoubtable monarch once lived for a time, but whose name gradually came to be corrupted into the present one of Cordelio. This is one version of the story; another is that the current form of the name was given on account of the number of larks seen there. My informant did not say "mud-larks," but these were the only specimens of whistling intelligences we saw, and they were evidently groping for eels in the adjoining fen, and passing very rude human jokes upon one another in the intervals of song. Whatever may have been the origin of the title, Cordelio is a prettily-situated village, full of handsome summer residences, built amidst orange and lemon groves, and rejoicing in a splendid background of picturesque mountains. These form the range which backbones the country as far as Alaschier, or ancient city of Philadelphia, the site of one of the seven Churches of the

river which carries off the surplus water, ever gurgling up all over the large pond of Halka Bounar or "Diana's Bath," about two miles from Smyrna. The writer does not attempt to reconcile the two statements, as, although one set of scholars have settled to their own satisfaction that the river Meles of Homer is the mountain torrent which dashes through Bournabat, another group of learned men point to a brook fully four miles off as being in their estimation the correct stream; while a third school of savants seem as positive as the other two that the true Meles is simply the overflow from the above-named fountain.

Apocalypse, more particularly alluded to in Chapter XXVII. In former days Cordelio was reckoned rather feverish on account of its proximity to the marsh, but its character is represented as now much improved. At ten and three-quarter miles from town is Chighily ("the place of shepherds"). From it a fine view is obtained of the important twin peaks called "Les deux Frères," and the "Smyrna Barometer;" important, because upon their morning aspect depends the happiness of such of the citizens as object to carry an umbrella without pressing occasion. About two miles farther on, the railway crosses the river Hermus at a point near which a stout cable is stretched for the purpose of working a pontoon-ferry. Following Chighily comes Ouloodjak (a place of mineral springs), with a varied cultivation all around of figs and olives, with occasional vineyards. Next is Menemen, named after the chief of a tribe of Turkomans, once 3000 strong, settled here for 500 years, but with the exception of 700 survivors all swept away by disease a few years ago. Standing on moderately high ground, the station possesses about a dozen windmills, and an English factory, where cotton is ginned in the otherwise unoccupied intervals of producing flour. Emir-Aalem (the village of the chief), twenty-three and three-quarter miles from Smyrna, is decidedly picturesque.

Unseen from the station, yet not far off, is the beautiful Lake of Tantalus. An olive-covered plain seems to penetrate and run up most prettily into the nooks of the mountains, where numerous villages are seen among groves of the *Velonia* oak. These trees are not planted by man; it is all done by birds, which, plucking the seeds from the acorn cups, drop them about, and these taking root, spread the acreage of the forest in every direction. Ghiaour-Keui is the objectionable name of the next stopping-place. From an early period this little town has always been occupied wholly by Christians, chiefly those of the Greek Church, hence the term "Ghiaour." The word, being one of reproach, is now forbidden by law to be used towards any

Christian throughout Turkey, so in official documents the town is called Hammedia, after the Sultan, and it is hardly fair of the railway company not to follow the courteous example. A few minutes' detention occurred at Horoz-Keui (village of the cock) to collect the tickets, after which, at the end of little over a mile, the train stopped at our destination, Magnesia.

This town is not the *Magnesia ad Mæandrum*, situated about fifteen miles from Ephesus, known as the scene of the death of Themistocles, a celebrated Greek general; but a rebuilt historic city, which rests on the northern slope of Mount Sipylus, destroyed by an earthquake during the reign of the Roman emperor Tiberius. Since the Turkish occupation of the province of Lydia most of the land around Magnesia belonged from an early period to a great Mussulman family, having been bestowed by the Sultan Aladin upon his successful general Karamân, or Carasmân, or Kara Osman Oglou (son of the black Osman), in the year 1300, for distinguished military service. It is of one of these feudal chiefs that Lord Byron in his 'Bride of Abydos' (canta 1, stanza 7) says:—

“ We Moslem reck not much of blood ;
 But yet the line of Carasmân
 Unchanged, unchangeable hath stood
 First of the bold Timariot bands
 That won and well can keep their lands.
 Enough that he who comes to woo
 Is kinsman of the Bey Og'ou.”

This rough soldier and his heirs wielded the power of life and death over the vast territory so acquired for more than five hundred years, and many hideous tales are told of the rude justice they administered, and the callousness with which they sacrificed human life in connection with the most trivial disputes. For example, a story is current in the town that on one occasion a mounted Greek trader, while enjoying his pipe on his way to Magnesia, was overtaken by Achmet, a camel-driver in the employment of the

Oglou of the day. The driver, presuming on his uniform and being somewhat of a bully, compelled the Greek to deliver up the valuable amber mouth-piece of his chibouque. Hastening onwards to the town the trader managed to reach the Konak, or palace, first, where he laid a complaint against the robber.

"Is Achmet far off?" inquired the Bey.

On being informed that his servant might be expected soon to arrive, Oglou replied—

"Then wait outside, dog of a Christian, and see the fate in store for the offender, should your words prove true, but which shall be yours if you have lied."

Within a few minutes Achmet arrived, he was called into the chamber, searched, and the amber tube found in his possession. At a sign from the frowning and terrible Bey the unhappy culprit was run out of the hall; and immediately hanged to a tree in the yard.

"See, dog of a Christian," roared Oglou, "thus I dispense justice; beware lest a complaint comes against thee. Begone!"

Such irresponsible power, however, was curtailed and finally shattered in the Oglou family, as well as among all the other great Turkish pachas, by Mahmoud II., between the years 1806 and 1826. At the present moment this once princely house has dwindled, through dissipation and extravagance on its own part, and envious cupidity on that of some of the officials at Constantinople, to a mere ghost of its former influence and wealth.

In Magnesia the distribution of *graine* was managed by the agent alone, Mr. Griffitt not interfering in the first instance; so, in order to lose no time, we visited the "Statue de Cybele" (Fig. 13), sometimes called "The Niobe," about four miles off, reckoned the oldest piece of sculpture in the world. Arriving at a spur of the mountain we scrambled up with some little difficulty, and I got a sketch of this unique monument. It is simply the colossal, roughly-hewn figure of a veiled woman, carved in the face of a limestone crag.

When near the statue it is difficult to connect it at all with a human figure, but a little way back brings out the likeness, and its artistic merit is very apparent. As might be expected of a work whose antiquity was unknown in the days of Homer, it is much decayed in several places, and some contemptible Goth, perhaps by way of preserving the stone, had recently been daubing it with coal-tar. In my sketch I omitted this evidence of vandalism, as also the mural scratchings of tourists, who all the world over seem to fancy that in cutting their vulgar initials or names upon trees, benches, tombs, or upon a splendid work of ancient art like this colossus, they are doing something meritorious for contemporaries and posterity to admire.

This curious relic of antiquity overlooks the vast plain bounded on one side by the Sipylus range of mountains. Homer alludes to it in line 605 of the last chapter of the 'Iliad,' and is thus rendered by Pope—

"Herself a rock (for such was Heaven's high will,
Through deserts wild there pours a weeping rill
Where round the bed whence Achelous springs,
The watery fairies dance in mazy rings)
There, high on Sipylus's shaggy brow,
She stands her own sad monument of woe;
The rock for ever lasts, the tears for ever flow."

As some travellers in Asia Minor have, through wrong information, missed seeing such a remarkable specimen of pre-historic art, it may prove useful to future tourists to be put on their guard against believing the absurd story that the Niobe is simply a singular effect of passing light and shade upon the mountain.* It is nothing of the kind, but is a very palpable mass of limestone rock semi-detached from its parent bed, and is the undoubted result of human workmanship.

Another caution is most desirable. In the days when

* See particularly 'Chandler's Travels in Asia Minor,' p. 381, where it is gravely stated, "The phantom may be defined as an effect of a certain portion of light and shade on a part of Sipylus, perceivable at a certain point of view."

the Oglou family meted out a species of rough "Jedburgh justice" to transgressors, as in the instance just quoted, the fear of summary punishment, if not of instant execution, acted wholesomely upon the thieves, burglars, and brigands of the period, and crimes against the purse and person were extremely rare. At present there is a change for the

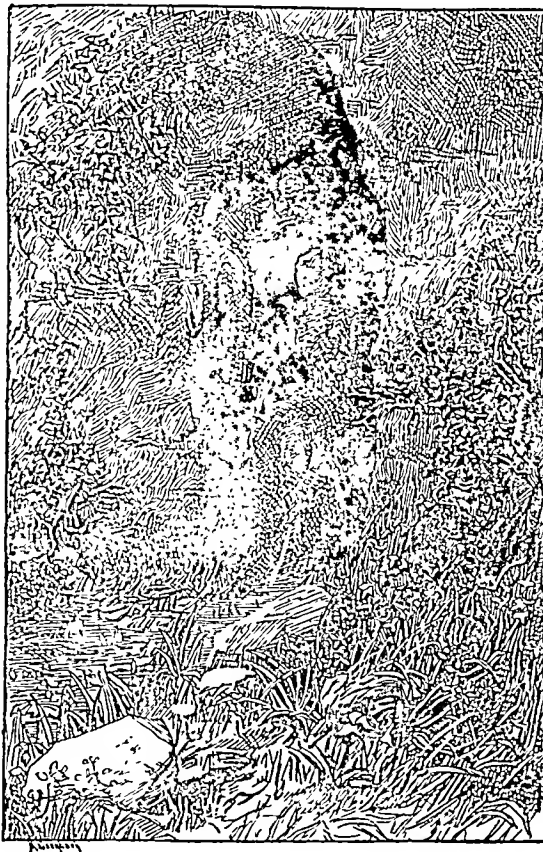
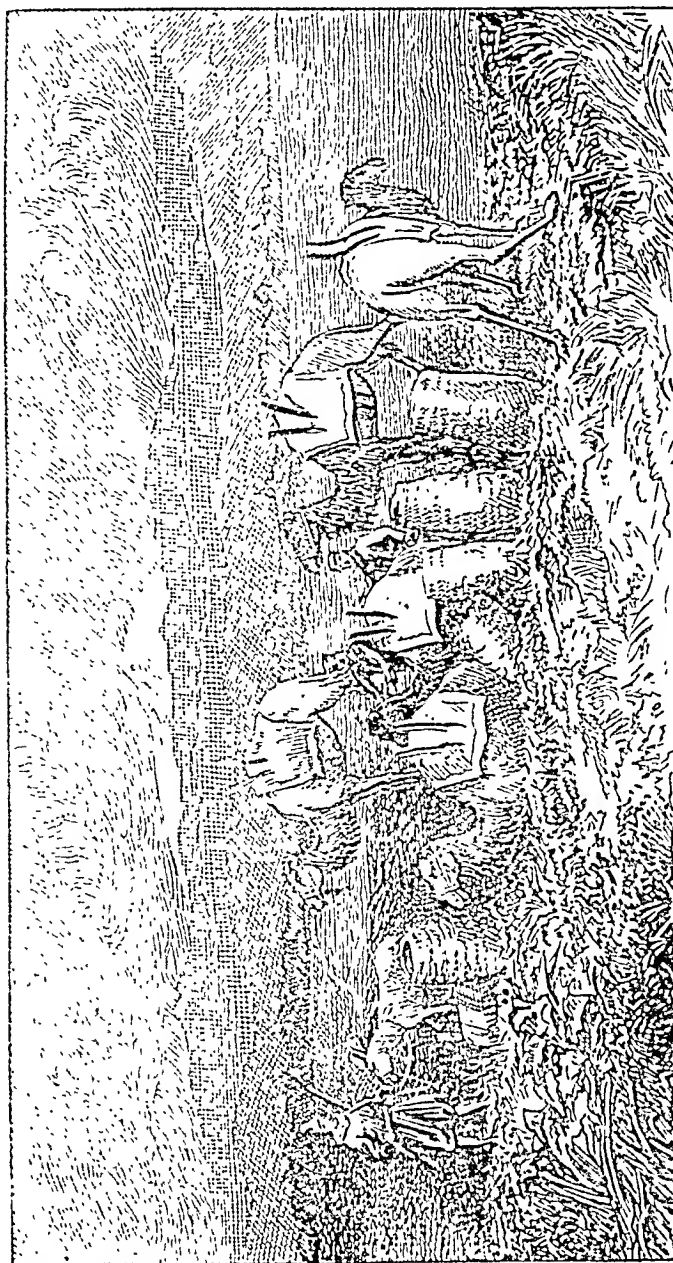


FIG. 13.—CYBELE OR NIOBE.—MAGNESIA UNDER SIPYLUS.

worse, and the rambling stranger, although nominally under the protection of the Turkish government when visiting the Niobe and other sights, had better be well armed, have an escort, and keep his eyes in constant exercise, or run the risk of being picked up by some of the picturesque freebooters of the hills, and held to ransom, with the alternative of the loss of his ears.

On our return to Magnesia we became aware of a piece of cool rascality that had been practised a day or two before at



MOUNT TMOLOS—CASSABA.
FIG. 11.—CAMEL ENCAMPMENT ON THE PLAIN OF SARDIS, NEAR CHOLANISSA.

Mr. Griffitt's expense, but which was destined to bear no fruit. Some scoundrel from Bournabat, or one of the ad-

joining villages, had already been round all the silk-farmers and distributed *graine*, which the buyers were led to understand was from my friend's establishment. In this way the plausible impostor had induced some of the more credulous to take his diseased eggs, and when the properly-accredited agent appeared they were naturally perplexed how to act. The matter was soon settled, however, by the repudiation and return of the bad article, the regenerated *graine* taking its place. Of this about 50 ounces were distributed, which would yield in forty days afterwards probably 8250 pounds of good cocoons.

Chobanissa is a small village $8\frac{1}{2}$ miles from Magnesia, on the same line of railway. It contains 150 houses, with a population consisting wholly of industrious Greeks, most of whom have vineyards, and whose wives and families add to their incomes at the proper season by the rearing of silk-worms. In this place about twenty ounces of eggs were distributed amidst similar enthusiasm to that already described. The village itself is not picturesque, but the surrounding country is very attractive, and much of it is under careful tillage of the kind considered in Turkey fair or even good. After our labours for the day were over, we walked forth to view the scenery, and lighted upon a large Turkish encampment of camels resting for an hour. They had been carrying sacks of corn towards Smyrna, but for the present were unloaded. The picture was impressive, and suggested a grand Scriptural one of other days, when the sons of Jacob were similarly employed carrying up corn from Egypt. Looking at that multitude of uncouth beasts, each with his nose in a bag and his sacks of corn on either side, at the little asses which led them, and at the armed, brigand-looking men standing around, one felt almost sure that the scene varied in no essential particular from that earlier one enacted in the days of the good king Pharaoh. It was hardly possible to resist attempting some transcript of the panorama. Accordingly, I made a rough memorandum of it in my sketch-book, with the mighty, snow-covered

Tmolus in the background, towering above the vast plain and frowning over the ruins of ancient Sardis (Fig. 14).

On the following day the distribution of *graine* here was finally completed, so we returned to Bournabat to prepare for the next excursion, the particulars of which appear in Chapter VI.

CHAPTER V.

THE MULBERRY.

SHOULD the contents of the last chapter have created some little interest for the subject in the mind of the reader, there need be no excuse offered for interpolating at this point some remarks connected with the uses and management of the mulberry tree. Of this beautiful and invaluable shrub there are many varieties, although only two kinds which have specially recommended themselves for feeding silkworms : these are known comprehensively as the *morus alba*, or white mulberry, and the *morus multicaulis*, or many-stemmed mulberry. Some of the other sorts are valued on account of their timber for ship carpentry, as the *morus rubra*, or red mulberry, which is allowed to be as durable under, or much exposed to, sea-water as the best oak ; some for their bark, whose tough and fibrous structure fit it for strong basket-work, mat, and paper-making ; one species is esteemed for the dye it yields ; another, the *morus nigra*, for its pleasant fruit ; and all the tribe for the excellent food the falling leaves make for fattening sheep during winter, in countries where the tree is plentiful. The *morus alba* is, however, by far the best friend of the silk-farmer, as not only does the *bombyx mori*, the champion silk-producer of the world, thrive best upon its leaves, but the result in silk, both as regards quantity and quality, transcends that obtained from any other known worm or diet. Yet, in the face of this experience, long ago confirmed from widely-separated silk-producing countries, there are silk-

farmers who still cling to the *morus multicaulis* as the best in their estimation for feeding their worms, particularly in the juvenile stages. It has merits, which consist in its being the earliest to bud in spring; in possessing great vitality, starting from the root with a multitude of thin, graceful stems as often as it is cut down; and in bearing an immense quantity of large, succulent leaves, which, on account of the shrub being usually kept low and bushy, are easily gathered. These good points have been recognised in the United States of America; and at Louisiana the *morus multicaulis* is asserted to be the best and most profitable kind, and was in 1884 given the palm for showing the healthiest worms, the best cocoons, and yielding the finest quality of silk. In Australia, also, the many-stemmed mulberry is a favourite with some sericulturists for early feeding, and in France and Italy it has likewise a few admirers. This is not surprising, as wherever labour is abnormally expensive those whose main object is economy in production irrespective of quality, and who are content with a coarse, inferior article, will be tempted to fill their plantations with this rapidly growing shrub, but the penalty exacted is the annual risk from late frosts, the leaves being watery and very tender; escaping which the farmer may still rest assured that in feeding his worms upon the leaves of the *morus multicaulis* either partially or wholly, except during their infancy, he is stinting them of nourishment, and voluntarily sacrificing the quantity and quality of silk which alone can be obtained from a diet of *morus alba*. At one time it was doubtless judicious in every silk-farmer to keep a small portion of his mulberry plantation under the *morus multicaulis* as a provision against premature hatchings, and for backward seasons during which the *morus alba* was late in budding; but now that incubation can be safely and successfully retarded by the use of ice, the many-stemmed mulberry is no longer to be recommended for the feeding of silkworms.

By these remarks it is not intended to discourage the

search after better and more remunerative food than the *morus alba*. All that is meant to be conveyed is, that the leaves of the white mulberry are at present incomparably the best diet known for the *bombyx mori*. There is a wide field open for experiment, particularly in the direction of obtaining, through judicious feeding, additional varieties of natural coloured silk. Already white, yellow, and delicate grey silks have been obtained from Indian worms which do not eat the mulberry leaf at all. Northern China receives a beautiful, fawn-tinted cocoon, from a gigantic worm which derives its nutriment from the leaves of the mountain oak; Europe has its pretty, pearl-grey silk, yielded by the ailanthus-fed *attacus cynthia*; blue cocoons were got in 1876 by M. Robin, who dosed his silkworms, during their latter ages, with small portions of indigo plants given along with their white mulberry leaves; and by feeding others on the leaves of the *begonia chica*, or trumpet-flower of the Orinoco, red silk was the result. M. Ruimet de Tallis, about the same period, discovered that a rich ruby colour was communicated to cocoons by previously feeding his worms for a time upon a species of vine, and an intense emerald hue by the use of lettuce leaves; while in the United States at the present time, the leaves of the Osage orange (*maclura aurantiaca*) are being employed for the ordinary rearing of silkworms in Mississippi and Tennessee, the glowing report of 1884 having been that the silk harvested was of the finest quality, and more copious in quantity than that obtained from mulberry-fed worms. Experiments thus instituted cannot but prove interesting to every one, and they ought to be encouraged, particularly when undertaken by persons whose after-testimony can be relied upon as free from exaggeration. At the same time it should never be forgotten that the venerable authority of Europe and the East—in indicating the *morus alba* as being up to this date the best known food for the *bombyx mori*, our only commercial silk-spinner worthy the name—transcends that of the West. In the former quarter of the globe sericul-

ture has been practised for more than a thousand years, whereas in the New World silk-farming is but of yesterday.

Italy and France have hitherto been the chief silk-producing countries in Europe. Both have suffered terribly during the past thirty-five years from the various silkworm diseases. It is to the latter that the world owes the release of silk-farming from these scourges, through the genius and perseverance of M. Louis Pasteur, yet it will only be necessary in this chapter to allude briefly to one or two points connected with the management of the mulberry among our nearest foreign neighbours. Hitherto the custom in France has been, after the mulberry seedlings or layers had attained a suitable age, to plant them out permanently twenty-three feet apart; and experience has shown the yield of leaves to be when

		3 years old, $3\frac{1}{2}$ kilogrammes per bush,		
10	"	$52\frac{1}{2}$	"	" tree
16	"	$88\frac{1}{4}$	"	" "
22	"	100	"	" "

or, according to good authorities, a fair average over all the plantations of $57\frac{4}{5}$ kilos, or about 127 lb. per tree per annum. Allowing 80 trees per acre, planted at the distance just indicated, the harvest of leaves should generally be about 10,160 lb. per acre, or amply sufficient to feed 160,000 worms, the full incubation from four ounces of healthy eggs, to maturity. The reason given for such apparently wasteful planting as twenty-three feet apart is to admit of other crops being sown between; otherwise, from twelve to sixteen feet asunder, the French farmers themselves say, is an ample allowance, as the mulberry roots roam in every direction to great distances, no matter however widely the bushes may have been placed. Adopting the latter figures for a plantation intended for mulberries alone, the number capable of being accommodated will be from 302 to 169 trees per acre. That close planting, even in a land less favoured in climate and soil than France, succeeds, is proved by the experience of Captain George Mason of

Yateley, Farnborough, Hampshire, a well-known English authority on sericulture, who, in a letter to the *Times* of 26th January, 1877, says that "from thirteen poles of poor, light land planted with mulberries, I gathered 1094 lb. of leaves," which, calculated per acre, shows a harvest of 13,464 lb. The same gentleman, subsequently addressing the editor on the 6th October, 1879, says, with reference to the use of ice for hindering incubation, "I have proved beyond a doubt that the hatching of the eggs of silkworms can be retarded for any time until the *morus alba* puts forth her leaves, and this may be regulated so as to allow the release of the workers from the hayfields before the worms enter on their fourth age, when my stock from five ounces of eggs requires for food 6155 lb. of sorted leaves in fourteen days."

China has deservedly long stood at the head of the world's silk raisers in respect of the antiquity of the industry in that country. According to her ancient authors Si-Ling-Shi, wife of the Emperor Hoang-Ti, was the first to introduce and encourage sericulture and silk manufacturing among her countrywomen at the remote date of 2700 before Christ. It can therefore scarcely be called going to an inexperienced source if I ask my readers to turn with me for a moment and examine the treatment the mulberry receives among a nation of farmers who have been familiar with the shrub for more than 4500 years. At page 343 of 'A Residence among the Chinese,' by Fortune, 1857, that writer says: "I spent the next few days in the vicinity of Nan-tsin, and as it may be considered the centre of the great silk country of China, I shall endeavour to give a description of the cultivation and appearance of the mulberry trees. The soil over all this district is a strong, yellow loam, well mixed and enriched by vegetable matter, just such a soil as produces excellent wheat crops in England. The whole of the surface of the country, which at one period has been nearly a deal level, is now cut up and embankments formed for the cultivation of the mulberry. It appears to grow better upon the surface and sides of these embank-

ments than upon the level land. The low lands, which are, owing to the formation of these embankments, considerably lower than the original level of the plain, are used for the production of rice and other grains and vegetables. It is therefore on the banks of canals, rice fields, small lakes and ponds, where the mulberry is generally cultivated, and where it seems most at home. . . . The variety of mulberry cultivated in this district appears to be quite distinct from that which is grown in the southern parts of China and in the silk districts of India. Its leaves are much larger, more glossy, and have more firmness and substance than any other variety which has come under my notice. It may be that this circumstance has something to do with the superior quality of the silk produced in the Hoo-Chow country, and is worthy of the notice of silk-growers in other parts of the world. . . . This variety is not reproduced by seed, hence all the plantations are formed of grafted trees.

“Each plant is grafted from a foot to two feet above the ground, and rarely higher. The trees are planted in rows from 5 to 6 feet apart, and are allowed to grow only from 6 to 10 feet high, for the convenience of gathering the leaves. In training the trees, they are kept open in the centre; the general outline is circular, and they are not unlike some of those dwarf apple-trees which are common in European gardens.

“The different methods of gathering the leaves in these districts are curious and instructive, and show clearly that the cultivators well understand the laws of vegetable physiology. Leaves are not taken at all from the plants in their young state, as this would be injurious to their future productiveness. In other instances a few leaves only are taken from the bushes, while the remainder are allowed to remain upon the shoots until the summer growth is completed. In the latter case *the leaves are invariably left at the ends of the shoots*. When the bushes have attained their full size the young shoots with their leaves are clipped close off by the stumps, and shoots and leaves

carried home together to the farm-yard to be plucked and prepared for the worms. In the case of young trees the leaves are generally gathered by hand, while the shoots are left to grow on until the autumn. At this period all the plantations are gone over carefully; the older bushes are pruned close to the stumps, while the shoots of the younger ones are shortened back a little to allow them to attain the desired height. The ground is then manured and well dug over. It remains in this state until the following spring, unless a winter crop of some kind of vegetable is taken off."

In Eugene Schuyler's 'Turkestan,' page 196, I find that in Central Asia "Mulberry trees are raised from seed planted in May and June. In a year's time the young trees are five feet high, and as thick as the little finger, when they are thinned and transplanted, all not required being used for feeding the worms. In the second or third year they are grafted, and the next year produce fruit. When used for silkworms it is common, instead of stripping small twigs, to cut off huge branches, reducing the tree to a pollard."

Coming now to the latest experience of probably the most successful silk-farmer of the present day, the following few remarks are given by permission and almost in the words of Mr. John Griffitt of Bournabat, near Smyrna, in reference to mulberry rearing:—When the *morus alba* is grown from seed it is recognised among sericulturists as the wild mulberry to distinguish it from grafted trees. Its leaves are large, soft, irregularly notched, and are of greatly varying shapes—some kinds resembling those of the vine in general appearance, others are like the fig, one sort at a little distance might be mistaken for the alder, another variety for the plane, and yet another resembles the leaf of the rose, although much larger. But whatever be the particular kind, wild leaves in a dry condition—that is free from rain, dew, or other surface moisture—shredded more or less finely with a suitable knife (see Fig. 18)—under circumstances of perfect cleanliness, form the best known

food for the first three ages of the *bombyx mori*. The leaves of the wild tree are less watery than those of the grafted mulberry, and are relatively more nourishing. In Asia Minor, as elsewhere, there are three ways of obtaining the wild mulberry—by seed, by cuttings, and by layering.

SEEDLINGS.

During the months of March and April, seed, from the best large-leaved specimens within reach, is sown in drills in well cultivated soil, and the young plants carefully watered every morning early through the period of summer heat. To afford temporary protection against the sun's power in a country where Fahrenheit's thermometer for several months often indicates 96 deg. in the shade, rows of hemp or corn are grown on the southern side of the drills, when, should proper care have been exercised, the seedlings will have reached the height by autumn of 18 inches. Ere winter has set in the plants intended to be grafted are removed into a roomy green-house and transplanted in rows three feet apart and eighteen inches from each other. The operation is performed in August, when the plants are budded or grafted as low on the stem as possible, and in the course of the following March such plants as have succeeded are cut down to the scions, while those which may have failed are regrafted the following month. When successfully treated the grafted seedlings may be removed outside about the end of the second year to the position in the plantation they are permanently to occupy.

CUTTINGS.

In February, when the sap is rising, but before the buds appear, the finest-looking branches of the previous year's growth are chosen belonging to trees which had produced large and shapely leaves. These branches are divided into short lengths, so that each slip shall have three likely buds

or eyes. The twigs are planted sloping, twelve inches apart, in good, well-wrought, well-drained land, leaving only one bud or eye above the ground. All weeds are removed and kept down, when, under ordinary circumstances, the plants may be conveyed to their appointed places next year, or that following.

LAYERING.

Whenever practicable, layering is considered much the best way to multiply the *morus alba*. During winter a vigorous grafted tree of five years' standing is cut down nearly to the insertion of the scion, when, about the middle of February, numerous shoots will spring from the mutilated trunk, each of which should be bent downwards, slit at the elbow, and buried in a mound of earth raised for the purpose. In a year or so, the layers will have protruded roots and be sufficiently self-dependent to endure severance from the parent tree, and to bear removal to the plantation.

Having obtained young mulberry bushes by either or all of these methods, the quickest way to secure a large crop of leaves is to form hedges with strong plants of a year's growth. They should be placed in prepared soil two feet apart, care being taken that the roots are not injured, and the stems require to be left protruding twelve inches. Next year the leaves may be gathered for silkworm feeding, after which the stems should be reduced to their original length of one foot, or even cut down to a level with the surface. By such treatment the plants are encouraged to produce fresh and numerous shoots, generally before autumn. The system of pruning, of which the above may be considered the first year's share, is that universally adopted in France. It is highly recommended by Mr. Griffitt, who has also furnished the originals of the following sketches (Fig. 15), showing to what extent the operation should be conducted for four years.

It may happen that from various causes a scarcity of

mulberry leaves occurs in a silk-farming district which will affect the harvest much in the same manner as if disease

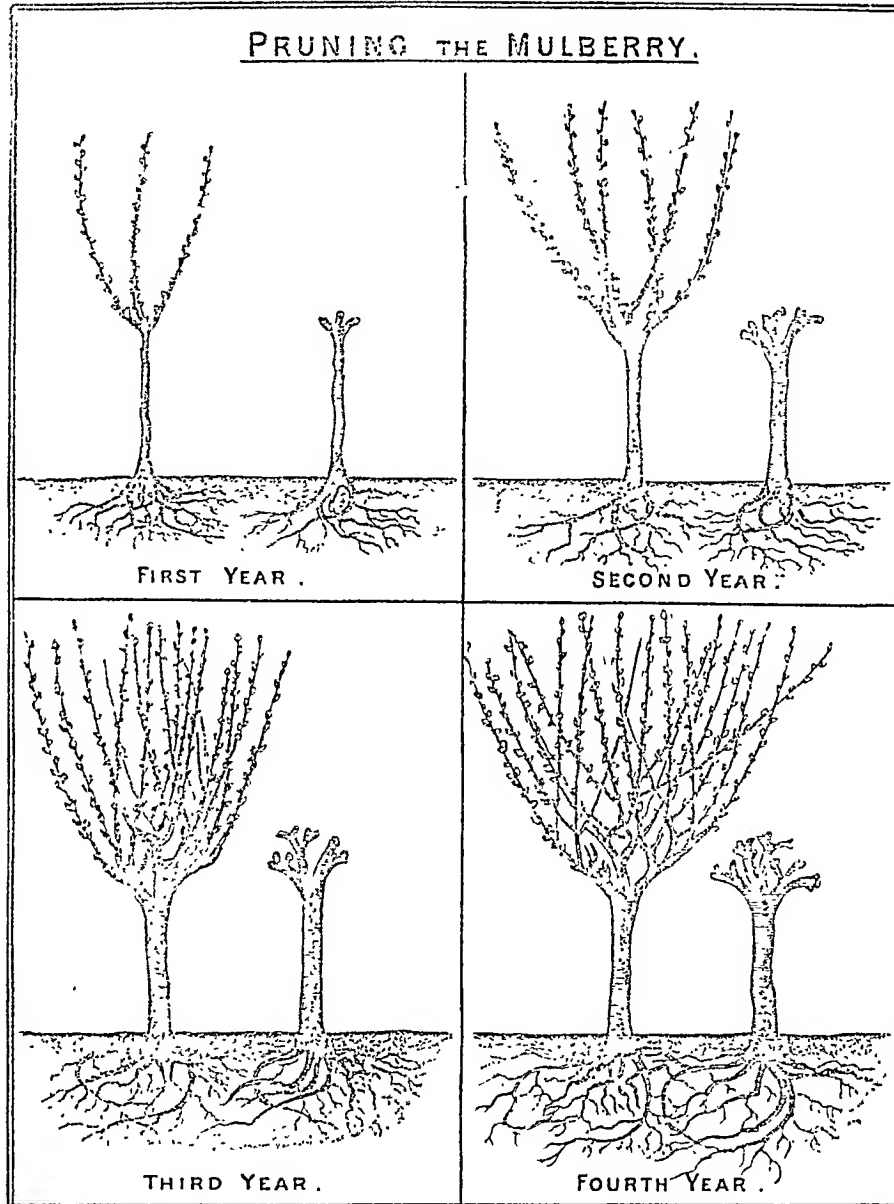


FIG. 15.—METHOD OF PRUNING THE MULBERRY DURING FOUR YEARS.

were present. In China such a disaster has never been conspicuous, as such enormous breadths of land have from remote antiquity been under mulberry cultivation. In that

country it is the custom for many persons to grow the tree extensively, but not to rear silkworms. Under these circumstances, when the hatching time approaches, immense quantities of leaves are hurried into the nearest market for immediate sale; and the growers are at all times ready to contract for the season to supply the farmers at an overhead price or at that of the day. It thus happens that in an undulating country, as China is, a blight occurring at one plantation may be quite unfelt quarter of a mile off; and a failure at a few spots has little or no effect upon the supply and price of leaves, or upon the progress of the industry.

Another good feature may be noted. The isolation of the plantations from the *magnaneries*, or nurseries of worms, has doubtless been the means of preserving the Chinese silk enterprise so long, from the full power of the various infectious worm diseases, which for thirty-five years ravaged the silk farms of Europe and Asia Minor, and to which her want of scientific skill is now exposing her a helpless victim. In the formerly great silk-producing districts of Kwangtung, Chekiang, Howquang, Kiangsi, Szechuan, and Kiangnan, the surface of the earth for hundreds of square miles is covered with millions of mulberry shrubs and trees, and as China is intersected in every direction with an intricate network of rivers, creeks, and canals, the market-places of the towns near the principal seats of silkworm rearing used to be lively scenes every morning before dawn.

For six weeks or two months mulberry leaves were almost the only merchandise offered, and the voices of the growers and silk-farmers engaged in a continual wrangle of trade, nearly the only sounds heard. Now, much of this bustle of busy commercial life is hushed, as China, having inherited the devastating maladies of Europe without the genius of a Pasteur to combat them, will probably sink year by year under the infliction until the silk industry of that vast country is extinguished. Meanwhile, her judicious system of separating her mulberry farming from her silk production had evidently so far saved her trade, and put off

the evil day for at least thirty-five years; thus affording a lesson to sericulturists in other parts of the world which should not be forgotten.

But a partial leaf-famine may occur, as was the case during 1885 at Bournabat and other villages near Smyrna in Asia Minor, from an entirely different cause, with which blight had nothing to do. In that locality, through the long continuance of the various worm diseases, vast numbers of mulberries had become utterly neglected or destroyed; still, those which remained had hitherto proved sufficient for the greatly reduced demands of the sericulturists. Through the almost herculean and untiring efforts of Mr. John Griffitt, those diseases had been latterly as nearly as possible overcome, consequently, as there were hardly any deaths among the worms hatched from the eggs he furnished, such a vast army of hungry creatures arrived at maturity, that ere the season was over they had eaten up almost every green thing. Thus there was in a sense a mulberry-leaf famine in that interesting neighbourhood, yet one easily provided against in future.

With the view of rendering the rearer of silkworms to some extent independent of scarcity, or tiding him over very backward seasons, it has been recommended to dry and powder each season's overplus leaves and preserve the result in closed jars. The experiment was tried some years ago, and it was found that when slightly moistened the mulberry-leaf dust was eaten by the worms with avidity. A later suggestion, of a more practical nature for sericulture on a large scale, was put in practice with success by a silk producer in Lombardy recently, and is detailed in the 'Journal of the Society of Arts' of 28th August, 1885, at page 981. This silk-farmer, applying the ensilage principle (which has proved a valuable mode of preserving green fodder for the winter consumption of cattle), made up a compressed bale of 116 kilogrammes (about 255 lb.) of mulberry leaves, and on the 23rd May addressed it to Milan. Through some oversight or carelessness on the part of the railway officials the

package did not reach its destination for more than a week, when it was found that, except two inches in thickness round the outside, the leaves turned out sweet and fresh ; the outside leaves even, although a little faded, were considered not unfit for food.

By one or other or both these methods, united to an increased acreage of mulberry plantations, both in Asia Minor and other silk-producing countries, future leaf famines could not fail to be greatly mitigated, if not wholly averted, and the attractive and once flourishing industry of sericulture placed in the position it ought to occupy.

CHAPTER VI.

GRAINE DISTRIBUTION.

THE principal theatre of graine distribution each season in this part of Asia Minor is, as might be expected, in the neighbourhood of Mr. Griffitt's charming residence at the prettily situated and healthy village of Bournabat, about four and a half miles by rail from Smyrna. It was here that during many long and anxious years the various silkworm diseases had been combated and throttled one by one by the aid of science—the dissecting knife, the mortar, the microscope, and latterly by following up the brilliant discoveries of M. L. Pasteur, of the Institute of France. As might also be anticipated, the small farmers, the olive and vine growers, and the peasantry of this district being constantly under the eye of the master, their annual silk results have generally transcended those of their compatriots in more distant places, both in quantity and quality. Under these circumstances it would seem to follow as a natural sequence of events that at Bournabat, as the end of March approaches, the demands for Mr. Griffitt's regenerated *graine* would be correspondingly copious ; and so they are.

About eight o'clock of the morning upon which it had been previously announced that the distribution of silkworms' eggs would occur, the house was literally besieged by a throng of old and young, from far and near, diversely dressed, and presenting a variety of feature and deportment which would have delighted the heart of the most fastidious operatic stage director. The occasion was a happy one, and

nothing but smiles prevailed, while the harshness of tone some people are accustomed to associate with the voices of a sturdy peasantry, was altogether absent. Indeed, the mellifluous, polyglot ripple of speech—Greek, Turkish, French, English—and laughter which welled forth unceasingly for hours resembled nothing so closely as the unpremeditated performance of a demure and stately cat walking leisurely over the treble keys of a grand piano. If there was any item in the picture to be surprised at or to find fault with amidst all this strange variety of colour, shape, and sound, it lay in the fact that, with the exception of a few Turkish women all in white, not one of the Greek girls wore her really fascinating national costume, but appeared in the unromantic habiliments of Europe.

Amidst such a babel of tongues it might be thought that to keep order would have been impossible, yet no hitch occurred. Some of the women got a quarter of an ounce of eggs, some considerably more, and a few with special facilities were amply provided ; all receiving some *graine*, according to a scale compiled upon the basis of previous experience, modified by recent intelligence and cross-examination. Taken singly, the natural propensity to exaggerate might have prompted many of the applicants to overstate their means of rearing, and thus get more eggs than they could possibly hatch and feed, with the view of selling the overplus. But, collected in a body in a suite of large rooms, their flights of fancy were kept from soaring too high by the wholesome check of one another's sharp ears and tongues. Thus all got a fair share, and no precious *graine* was wasted or surreptitiously obtained. As the forenoon wore on some respectable-looking Turks appeared, attracted by the high character their women had received of Mr. Griffitt's product. They also got some ; indeed, the donor sent no one empty away, although in some instances, among the stranger applicants, there appeared little prospect of a guarantee for their future fair dealing when the cocoon crop should be ready, except the known general character

for honesty such people bear. By three o'clock the distribution for the day was brought to a close, to be resumed on the morrow by Mrs. Griffitt and her assistants; whilst the master, his travelling agent, and the writer proceed by carriage over twelve miles of good road at a rapid pace to Nymphio, to open a distribution there.

The drive proved most beautiful, combining magnificent glimpses of the Bay of Smyrna, with the ever-present adjacent crags, large plantations of gnarled olives of unknown age, and orchards of peach and cherry trees in full bloom. Having been mostly uphill for fully half the distance, and the day hot, the little military station of Belcafé was gladly made a halting place for a few minutes. While the perspiring horses drew breath and rested, we sat under the verandah, and one of the soldiers brought the usual tiny cups of coffee, apologising for the want of sugar by stating that his week's supply was just exhausted, and that the fresh stores had not yet arrived. Although the flavour of the beverage was unexceptionable, yet every one knows that coffee without sugar is scarcely a dose usually taken with avidity. In this case, being very strong, it was correspondingly nauseous, yet we all three swallowed it as if we liked it, with a trio of deceptive smiles, and the word of thanks—"f-acharisto." The intention of the poor Turkish soldier was kindly and well meant, even if he saw the prospect of a "metalique" or two afterwards, so why should we spoil his pleasure by a refusal or making a wry face?

Picturesquely mountainous, the approach to Nymphio proved both beautiful and grand. Not far from the little town we passed the ruins of a Byzantine castle or palace built by the Emperor Andronicus the younger. It is a quadrangular pile of the twelfth century, of no great area, although lofty, and is at present surrounded by a cherry orchard which on this occasion was gay with blossoms. It is said that the whole district has from remote antiquity been famed for its

fruit and grapes, vast quantities of which are annually produced ; indeed, the preparation of raisins and wine form the chief industries among the resident Greeks.

As is usual with true knights of the box and whip, our jehu brightened up and pulled his horses well together on reaching the outskirts, prancing up the main street in thoroughly orthodox style, and stopping at an open space before a coffee-house, where we dismounted. There was a crowd of eager and willing hands ready in a moment to carry off the contents of the carriage to the house appropriated to our use ; thither we walked up a narrow and tortuous lane with many a mysterious turn and twist, not sorry to welcome its coolness, as contrasted with the vehement sunbeams outside. The house belonged to a relative of Mr. Griffitt's agent, and proved very comfortable, and the inmates hospitable. From the verandah a most enchanting view was obtained of the Acropolis-crowned heights and part of the upper village, the rough delineation of which occupied the writer very agreeably, whilst the townspeople flocked upstairs in a seemingly endless stream to participate in the distribution.

Notwithstanding the precautions taken to retard premature hatching, it was found that a few of the eggs in some of the boxes had incubated during the drive, and the lively little worms were wriggling vigorously through the minute pin-holes punched in the lids for ventilation ; but as we had now got into a colder atmosphere no more precocious life appeared.

With the exception of a short pause for refreshment, the distribution of eggs proceeded uninterruptedly as long as the daylight lasted. Night however set in suddenly, as in those Oriental parts there is scarcely any twilight, so the amiable young Greek housewife, thinking it time that my boots should come off, courteously brought a pair of handsomely-embroidered slippers, and merry was the laugh all round when I, in thanking her, pointed out that they were about an inch too short for my vast Scottish feet. After a while the doctor of the town came to call, M. Michil

Theologheithis, a native of the beautiful island of Mytilene, in the Archipelago. He most kindly offered to accompany me on the morrow upon any excursion that might be fixed, recommending particularly a ride to the rock-carved figure of Sesostris, some twelve miles up among the mountains—a suggestion which coincided exactly with a programme already decided on.

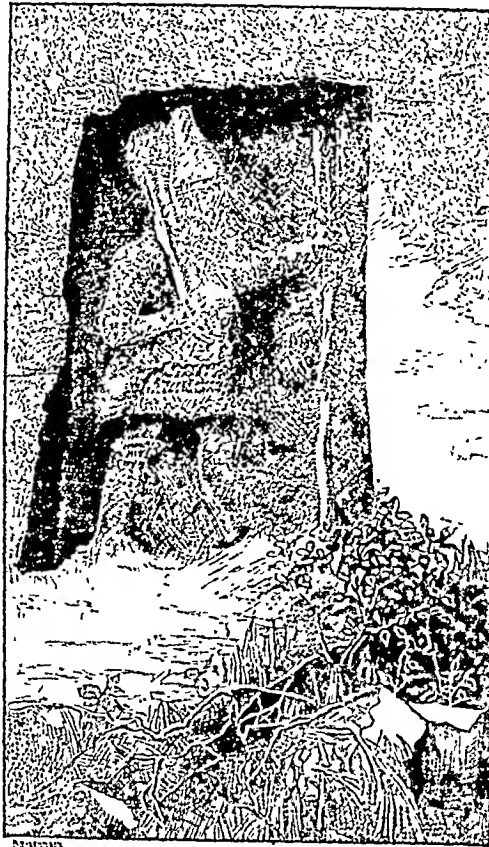


FIG. 16.—SESOSTRIS. NIMPHIO.

Doctors, like other human beings, have their little grievances and disappointments. Among other complaints this entirely amiable and good-natured surgeon made was, that he represented in his own person a specimen of one who had successfully performed the feat of stepping out of the frying-pan into the fire. Had he stopped at that point I should not have been much wiser, as I felt that exercises

of that unprofitable nature were far from being uncommon at home, and that I could not plead ignorance of some such achievements myself. He added, however, that, on the completion of his professional studies at Athens, he had left his beautiful Mitylenian home, where people were seldom ill, for the almost equally lovely town of Nymphio, where no one appeared to die, and so had hitherto experienced but scant openings for the practice of the healing art. His remarks, it was afterwards learned, were well deserved, as this neighbourhood is considered one of the healthiest in Asia Minor.

Hardly had dressing been completed the following morning and we were about to breakfast at half-past six, when an extremely ancient dame, very shrivelled and wrinkled, was announced. She came stoutly into the room without either crutch, stick, or other assistance, and defiantly laid down on the table a box of *graine* her daughter had received the day before, with the demand that another one should be given her in place of it. Some time was lost in eliciting the nature of *her* grievance, as she seemed to labour under the strange disability of perfect belief in Mr. Griffitt's honesty and fair dealing, overpowered, or rather temporarily overshadowed, by a feeling of intense suspicion of that particular little orange-coloured box. It was in vain pointed out to her that the box and its contents were in every respect the same as the others, many of which remained in the baskets for the day's distribution. "No," she asserted, "the spell was omitted, no good could follow." At this moment the superstitious old lady's grandson came upon the scene, and pointed out that the flaw lay in the absence of Mr. Griffitt's signature from the lid of the box. In former years it had always been there, it was absent now, consequently the *graine*, in his suspicious relative's estimation, must be bad, or at least inferior. Here the voluble complainant herself struck in. The eggs she had received, she said, during previous years from Mr. Griffitt had always turned out well; but the name of the master, like the seal

of Solomon on the tin containing the genii, had been on the lid. The good effect was clearly traceable to the potent cause; one was absolutely necessary to the other. Without the signature there could be no crop of silk, as without the seal the malignant spirit would long before have been released from his little metallic prison to trouble mankind. In some such way the old lady held forth, and quietness and peace were only restored by her being allowed to select another box upon which the talisman appeared.

There were other episodes enacted in the course of the day—some amusing, some affecting, and all instructive—which clearly went to show what a good work Mr. Griffitt is doing in Asia Minor. The lame and the halt came and got their little donations and went away joyous. No less eagerly came the healthy and strong. For all there was a smiling welcome and a kindly word.

The town of Nymphio is about equally divided between Turks and members of the Greek Church, containing about 350 houses of each community, or a total of some 4000 persons; to see something of which Mr. Griffitt and I sallied forth after a light breakfast of hot goats' milk, brown bread, and eggs. Later in the day, when the distribution was finished, I had an opportunity of seeing the sources of a turbulent little mountain torrent which tumbles impetuously through a narrow valley of a mile or two in length, turning eight flour-mills during its headlong course. It originates in four copious springs welling out not far from each other from the limestone rock, and, after providing the means of livelihood for as jolly a set of millers as are to be found anywhere, gushes onwards a pure, cold, refreshing, never-failing stream, through the picturesque little town, to irrigate the gardens and fields on the plain beneath. I would willingly have lingered here an hour or two to make studies of the fountains, the rocks, the splendid trees just bursting into verdure, the mills, and of the jolly millers themselves, but our Greek guides were inexorable; they said there was something on the top of the hill really worth seeing, and

thither we went. It was the ruins of the ancient Acropolis—an immense Byzantine fortress, of which only a few crumbling walls and towers of great thickness remain. I was sorry afterwards that I had surrendered my own judgment, for, grand and even picturesque as the old castle proved to be, the pictorial riches near the noisy brook below were out of all proportion greater.

Meanwhile it had been intimated to the Turkish authorities, in the person of the Mudir of Nymphio, that the doctor and the writer proposed to ride into the mountain district on the morrow. In the evening this high official replied to Mr. Griffitt most courteously, stating that horses and a guard of four soldiers would be in waiting for us at eight o'clock. We went at the hour appointed, had an interview with the Mudir, accompanied with coffee and much tobacco-smoke, and at nine precisely mounted our prancing steeds and were off. We were a curious-looking party as we threaded the tortuous lanes in single file, splashing onwards through the copious mud which an early morning deluge had produced. First went two skirmishers on foot a few hundred yards ahead, followed by the turbaned officer in command in blue, mounted on a handsome chestnut, across the neck of which his short, handy, loaded rifle rested. Next came the writer, then the doctor, equally well-mounted on high-peaked saddles, out of which it seemed as if nothing short of an earthquake could dislodge the riders, whilst the rear was defended by another bold cavalry-man similar to the first, except that he wore the simple red fez, and had no embroidery on his uniform. The whole four, infantry and cavalry, were active, wiry, determined-looking, yet exceedingly pleasant-featured fellows, and the manner in which they managed their arms and horses showed that they knew what they were about, and were accustomed to take care of themselves and others. Thus we went forth into the mountains, amidst scenes which from the dawn of human history have been associated with war and carnage, robbery and crime, and among the very rocks which ages ago

echoed the tread of hostile Persian, Greek, Roman, and Goth, and where in later times the mere vulgar brigand levied his ruthless toll.

At first the path wound in and out of fields, through vineyards and olive plantations, but soon got to the comparatively open country. Occasionally the horses were wading fetlock deep in sticky mud and water, then by a violent scramble up the steep bank the edge of a boulder-strewn meadow was reached, over which the spirited animals bounded at a pace seemingly dangerous, but which to these wild soldiers and the hardy quadrupeds we bestrode was doubtless only an everyday experience. Sometimes we were sliding down the further margin into a brawling torrent a yard in depth, anon climbing the other side and tearing through prickly underwood and over smooth limestone rocks, the very rapidity of the motion and continual change driving everything like fear completely out of one's head. But for this, the necessity of holding grimly on, or looking out anxiously for soft places upon which to fall with grace and comfort, might have taken away all appetite for the grand panorama through which we were passing. As it was, it soon became evident that the words "coming to grief" were for the present out of our vocabulary; so, allowing my particular animal to follow the bold dragoon in front without check or hindrance, I had ample opportunities for contemplating the novelty and magnificence of the view. Some of the crags of a thousand feet in height were split from summit to base as if cloven by a pre-historic giant. Yet even amidst these wild specimens of chaos, doubtless the effects of many earthquakes, there was much rude cultivation, and the huts of the peasantry, dotted among the precipices as well as on the lower slopes, were seldom long out of sight.

Notwithstanding the bad roads, the rocks, and the torrents, our two skirmishers on foot kept well ahead all the way with their rifles at the trail, ready for instant use. At length, after about two hours' hard travelling, the base of a densely-wooded mountain slope was reached, we dismounted

and scrambling up about one thousand feet came to the colossal rock-hewn figure of Sesostris (Fig. 16).

This strange memento of the past is believed by some scholars to represent Ramesses II., a king of Egypt, whose extraordinary exploits may be summed up in his reported subjugation of all Asia and Ethiopia. The presence of such a rock-carving in the district is explained by the known practice of Egyptian and various ancient monarchs, of leaving sculptured traces of their presence in conspicuous parts of the countries they vanquished. Other authorities, thinking that no single representative of any dynasty could possibly have achieved all, or even a small portion of, the triumphs attributed to Ramesses II., fancy that the figure of Sesostris, and others like it elsewhere, are simply heraldic emblems of a conquering nation. The same difference of opinion extends to the date of this rock-carving, some placing its execution at the remote period of 3712 years B.C.; others assign it to an epoch long anterior to that of Cheops of the fourth dynasty; a few place it later; but all agree in the opinion that it is the oldest known bas-relief in the world.

The position of the effigy occurs upon the face of a bare limestone cliff jutting out from the body of the mountain, and is simply a much-decayed carving of a mailed warrior of gigantic size in a walking attitude, the right arm and hand brought forward in front of the breast, and the left grasping a spear. It is interesting mainly on account of its age and associations, in no small measure to the picturesqueness of the scenery passed through in order to reach it, and to the splendour of the view obtained by the pilgrim when there. After a rough sketch made of the rock-etching, during which the two skirmishers took up a position of vigilance, with ready-poised rifles, on the rocks above, we all descended the slippery incline, remounted, and commenced a rapid helter-skelter to Nymphio, which was reached in considerably less time than the outward ride of the morning.

The narration of a tour of this kind would, however, be labour comparatively lost, were it not followed by a reflection or two. For centuries Asia Minor has borne a bad character for brigandage, and an excellent one for fertility. The first it was rapidly losing through the determined attitude of the late Governor of the vilayet in which Smyrna is situated, His Excellency Hadji Nachid Pasha *; whilst the second is not only retained undiminished since St. Paul fought with wild beasts at Ephesus, but is being annually augmented by the gradual application of modern ideas. The peasantry and small farmers are a hard-working, provident race, but the whole country groans for lack of good roads, and these ought to be provided without delay, in order that the resources of the teeming soil may be developed. There is an excellent line of road from Bournabat to Nymphio, over which carriages trundle with as much ease and comfort as they do through any home public park. Why are there not more of them? Where, out of Turkey in Asia, would such an anomaly be permitted to endure as that of having expensive carpets carried on camel-back exposed to the vicissitudes of the weather for seventy miles from Oushak, the place of manufacture, to the nearest railway station, Alascheir? (Philadelphia of the Apocalypse.) During these seventy miles, which occupy at least five days to accomplish, the bales of carpets, many of them really works of art, are frequently injured by drenching rains, the caravans often require to pass through raging torrents, and occasionally camels, carpets, and men are carried away and half-drowned, if not lost in the boiling waters. These remarks are made in no carping spirit prone to find fault, but in order that reforms and improvements for the benefit of the country may be multiplied and hastened.

* This excellent Turkish officer has, since this chapter was written, been promoted to the governorship of Syria, where, doubtless, he will prove equally successful in encouraging trade, strengthening cordiality between the subjects of the Sultan and foreigners, and crushing the predatory tribes who have so long proved the curse of the Holy Land.

CHAPTER VII.

THE NURSERY AND ITS APPLIANCES.

SOMETHING having already been said about the early stages of a season's silk-farming operations in Asia Minor, as well as concerning the management of the mulberry tree there and in other silk-rearing countries, the next important subject connected with this fascinating industry is the regulation of the *magnanerie* or worm nursery. In endeavouring to mirror this department, I shall again place before the reader the views, experience, and as nearly as possible the language of the manuscripts entrusted to me by probably the chief sericulturist of the day, Mr. John Griffitt; leaving to a subsequent chapter my own observations on what I saw of the fine silk harvest of 1885, while enjoying the hospitality of that gentleman and his amiable wife at Bournabat near Smyrna.

At the outset Mr. Griffitt says: "I deem it only my duty to offer my thanks to the distinguished scientist M. Pasteur, to whom modern sericulture owes everything for his regeneration of the silkworm. Other able men had toiled fruitlessly for years in search of a remedy for the diseases which had almost destroyed the industry of silk-culture in Europe and Turkey; but it was through his labours and unwearied explorations alone, in which his life was nearly sacrificed, that silk-farming has at length been able to get rid of the noxious and troublesome plagues called *pebrine* and *flacherie*, which I shall describe further on. I have pondered M. Pasteur's work, 'Études sur la Maladie des Vers à Soie'

(‘Studies of the Diseases of the Silkworm’), for years; I have gone over all his experiments, which, I hereby testify, are truthful to the letter; any instructions which follow in these pages regarding the scientific management of the silkworm are based upon his suggestions; and if my results should prove of service to persons engaging in sericulture I shall feel amply repaid and gratified.”

Mr. Griffitt, in his documents and conversation, lays great stress upon the airiness and cleanliness of all apartments, and utensils used in connection with the industry, and goes on to say—“It is essential to the health of human beings that their habitations should be kept free from noxious vapour, so in the case of silkworms pure air is indispensable. When an education is small this is easily managed by the same means we should use in our private houses; but on a large scale the power of renewing the atmosphere of the nursery rapidly by means of valved openings to the outer air on all sides, above, and below, is necessary, as, notwithstanding the utmost vigilance and activity in maintaining cleanliness on the part of the educators and their assistants, the copious evacuations of say 240,000 vigorous worms would soon, without abundant ventilation and the presence of disinfectants, render the *magnanerie* unbearable.

“It is desirable, also, to have the power of quickly heating the nursery at the commencement of a silk season, and of maintaining the temperature at a regular uniform pitch, yet keeping always in view that after incubation any abrupt change, either up or down, as indicated by the thermometer, is apt to cause the troublesome disease named *flacherie*. When a cast-iron stove is used without modification, it usually emits too violent a degree of heat, which quickly subsides as the fire burns low or dies out; consequently, such a stove ought to be surrounded and covered with suitable bricks built without mortar, the whole being placed in the centre of the apartment and sufficiently distant from the stands and frames, or other woodwork, to prevent all risk

from fire. Thus arranged, the heating apparatus affords a genial glow which lasts longer and is without the objectionable fluctuations which characterise all heated, bare iron surfaces."

NURSERY APPLIANCES.

"*The Incubator*.—Educators in Turkey among the peasantry hasten the hatching of their *graine* by carrying it about their persons; an objectionable habit which is injurious to the eggs, as, the heat to which they are exposed being unequal and intermittent, great irregularity occurs in hatching and

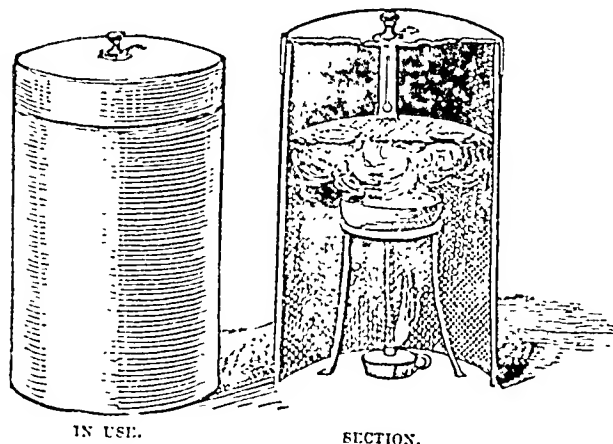


FIG. 17.—THE INCUBATOR.

in the final results. My method for years has been to place the *graine* in thin layers in a room heated by an earthenware stove, gradually raising the temperature to seventy degrees Fahrenheit, care being taken to keep a vase containing water always on the stove. For raising worms in large numbers this is probably the best plan, but for small educations the use of a little instrument about to be described (Fig. 17) is more economical.

"The incubator consists of a cylinder 32 inches in height and 16 inches in diameter, made of zinc, open at both ends. Eight inches from the top a shelf of loose-textured cloth is stretched, on which the boxes containing eggs are laid.

Underneath, resting on the floor or table upon which the apparatus stands, a night-lamp is placed with a tripod supporting above it a vessel of water, the gentle vapour from which is necessary during the process of incubation. For the purpose of exhibiting the degree of heat inside, and regulating it, a little thermometer rests on the shelf, and the cover is kept on or off according to its indications."

"*Thermometer and Hygrometer.*—In the early stage of a pursuit which depends so entirely upon the accurate and immediate knowledge by the educator of the temperature of his nursery, and what degree of moisture the atmosphere of it contains, it is scarcely necessary to remark that no *magnanerie* with any pretensions to be conducted on scientific principles should be without at least one thermometer and a hygrometer, so placed as to be easy of access at all times to the attendants. These instruments, although not as yet used by the Chinese or by the peasant silk-farmers of Turkey, will be acknowledged as desirable by any one possessing the slightest smattering of physics, when it is added that the silkworm is peculiarly sensitive to sudden changes, and is as injuriously affected by an excess of dampness in the air as by abnormal heat and cold. It has already been stated that 70 degrees Fahr. is the temperature at which I have for years been accustomed to commence the incubation of my *graine*. On these occasions the reading of my hygrometer (Saussure) has usually been 80 to 85 degrees."

"*The Leaf Cutter.*—This useful little instrument is used for shredding the mulberry leaves given to silkworms during their first three ages, and resembles in shape and appearance the knife employed in producing cut-tobacco (Fig. 18). It is fixed to a stout board or bench by means of a swivel joint, which permits its movement in any direction. The leaves, carefully assorted and freed from stems and decay, are held in the left hand, and the knife brought down sharply with the other. As they must be shred very delicately for the first age of the worms, the

edge of the tool should be kept sharp, and it and every implement or board used, maintained scrupulously clean, as any fermented sap remaining from a former use would inevitably cause disease.

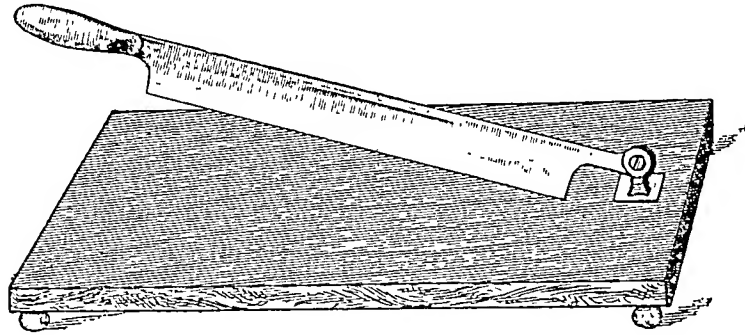


FIG. 18.—THE LEAF CUTTER.

“Shredding the food for silkworms, however, is a process susceptible of both improvement and modification, according to the extent of the nursery, and doubtless in large concerns this will be done in the future by machinery.”

“*Pierced Papers.*—The most important duty connected with the work of the *magnanerie* is the frequent removal of the litter from about the worms. In order to accomplish this rapidly, tulle net is used for raising the little creatures

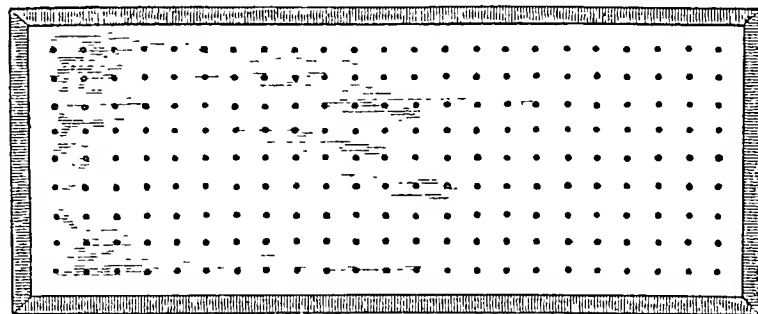


FIG. 19.—PIERCED PAPER WORM TRAY.
24 by 20 inches.

when recently hatched, and the same material with a more open mesh or texture, during the first and second ages. As the worms increase in size, sheets of thick brown paper pierced all over with round holes are used for the

third age, and similar papers with larger apertures for the fourth and last ages. A convenient size of paper is twenty-four by twenty inches, with a margin left all round, folded over, and securely pasted to give strength, the holes being made with different-sized punches, like those used for cutting gun-wadding (Fig. 19).

“When required, these papers are placed gently over the worms where they are feeding, and shred fresh leaves strewn on the upper surfaces. Feeling the scent of the food, the little creatures creep through the holes, and in a few minutes the entire education, whether hundreds or thousands, will have wriggled from underneath and established themselves in their clean quarters. One by one the papers are gently removed with their living loads of worms to spare frames, while those from which they have been taken are carefully cleaned, with as little disturbance and dust as possible. Any worms found lingering behind in, or *below*, the litter should be mercilessly burnt, as being probably diseased; those remaining simply *on* the surface of the litter may be spared, removed, and fed apart from the others, any signs of weakness or languor being noted and such suspicious specimens destroyed, as it should never be forgotten that the presence of a single tainted worm may suffice to infect hundreds of sound individuals, and blight the efforts of the sericulturist for the season. It should also be noted that, when removing the worm-covered pierced papers from the frames they should be lifted right up, not dragged, and laid on trays of thin wood or stout pasteboard for transference to the clean frames. If dragged, such of the worms as may not have quite crawled through the holes, run a risk of being bruised or lacerated, a result which every humane person would of course endeavour by the exercise of a little care to prevent. As soon as the worms are removed the litter should be immediately conveyed away in baskets, thrown gently into a pit, and covered with earth. The raising of dust during removal, emptying out, and in wiping the frames, ought to be

avoided, so as to minimise the spread of any germs of disease, should they unfortunately be present.

“The advantages of using pierced papers in the nursery are as follows:—

1. They facilitate the cleaning of the frames without the necessity of touching either the worms or the litter with the fingers; most important considerations in sericulture.

2. Diseased and weakly worms are thereby detected, which may have escaped the eyes of the educators, and their removal rendered easy and certain.

3. The pierced papers afford a simple and rapid method of allowing increased space to the education, rendered necessary from time to time by the augmentation of the worms in size; and

4. The work of the *magnanerie* is overtaken in a tithe of the time required by former methods; a matter of vital importance during the last two ages of the worms, when they sometimes eat ten times their own weight of food in a day, and when their discharges are correspondingly copious.”

“*Stands and Frames.*—The stands in a nursery are light wooden erections (Fig. 28) which support tiers of frames on which the worms are fed. They may be made of any length, limited only by the dimensions of the apartment in which they are to be fixed; their breadth, however, should never be more than forty-two inches, so that the worms upon the frames can be examined from either side. The dimensions recommended are as follows:—The uprights should be two inches square, with the lower extremities standing in pans of water, to baffle the raids of ants or other creeping enemies. These posts are placed opposite each other at convenient intervals, four feet apart, and are fastened together by side bars passing longitudinally from one pair to the next. At the height of twenty-six inches from the floor, and at similar intervals upwards, little wooden brackets are nailed to the posts so as to project inwards two inches, to serve as convenient supports for the frames

which are simply laid on after the stands are completed. It is not advisable, whatever be the altitude of the ceiling, to have more than five frames in height to each stand, which will thus rise to about nine feet. Between the wall and the nearest stand, and separating them from each other, a space of thirty inches should be allowed as a passage for the educators, who ought to have free scope to perform their duties.

"The frames are made of light soft wood measuring 3 inches by 1 inch, 15 feet long, and $3\frac{1}{2}$ feet wide, to fit easily between the posts of the stands, and rest upon the brackets. Each frame is strengthened by two cross bars, and completed by interlacing wire-work, as in Fig. 20.

Before being placed in the stand, cheap cotton-cloth is

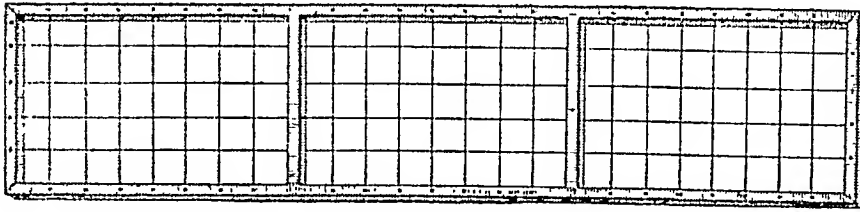


FIG. 20.—FRAME ON WHICH SILKWORMS ARE FED.

tacked on the frames immediately over the wires, each tack being driven through a fragment of felt or other tough material to aid in preventing the cloth being torn when afterwards removed to be disinfected and washed at the end of the silk season. Should the stands and frames have been properly put together, and carefully taken down when the harvest has been completed, they and the cloths ought to last for several years.

"As regards the extent of stands and frames required for an education, the reader will be in a position to make his own calculation when informed that, the worms from one ounce of healthy grain, numbering about 40,000, during their final age, require eighty square yards of frame space, or one square yard for each 500 worms. When an education is being conducted for silk alone, a larger number of worms

may be safely domiciled together ; but the preceding figures represent the area desirable when the insects have been raised with special care for reproduction, and with the expectation of obtaining untainted eggs."

" *The Microscope*.—It need hardly be said that no modern *magnanerie* would now be considered worthy the name without its little laboratory, and no laboratory could pretend to completeness without a microscope and its apparatus. The havoc wrought by disease during the past thirty-five years in Europe and Asia has been so tremendous, and the loss so great to all classes, that the sericulturist of the present and future would be justified in launching into any expense, if by so doing he could hope to keep the already well-known silkworm maladies at a distance. Fortunately, he is not now required to spend his thousands, or even hundreds ; that has been done years ago by the French Government, to whom, and to M. Louis Pasteur, the silk-farmers in all time coming will rest under a debt of gratitude. His chief laboratory appliance is simply a little microscope, the use of which will be explained in a subsequent chapter. The instrument recommended is made by Nachet et fils, No. 17 Rue St. Severin, Paris, and has been produced expressly for sericulturists. It costs 95 francs, about £3 16s., and magnifies 500 diameters, or equal to a superficial enlargement of 250,000 times, thus placing at the disposal of the investigator ample power to enable him to distinguish clearly the organisms connected with the diseases *pebrine* and *flacherie*."

" *Cocoon Steamer*.—The last of the silk-farmer's apparatus, to which allusion need at present be made, is that of a useful machine for quickly destroying the life of the silkworm before it has begun to perforate its silken prison. In different countries various methods are or have been employed. At one time in China the usual plan was to place the live cocoons in large jars under layers of salt and leaves, with as complete as possible an exclusion of air. In Syria they are spread out on mats and exposed day after

day to the fierce glare of the mid-day sun ; in some other places baking in ovens, or plunging the cocoons into and keeping them for a time in contact with boiling water, are the methods resorted to for killing the little silk-spinners. Exposure to the sun has, up till recently, been the Turkish system ; but as this manner of stifling the insects causes loss of time, injures the fibre of the silk, and renders reeling more difficult, it is now to some extent superseded by an Italian arrangement in which steam is the destroyer. By means of this simple apparatus, four large baskets of cocoons are simultaneously treated, so that in about a quarter of an hour or twenty minutes all the insects they contain are deprived of life, a portion of the natural gum of the cocoons is dissolved, and the silk is afterwards reeled off with great facility and little waste. The machine consists of a drum of zinc made to any size required, a convenient form being three feet high and nineteen inches in diameter, with a tap near the conical cover to let out steam if necessary, and a ring in the top for the attachment of a chain or rope to hoist and lower as required. The inner part of the steamer is made of stout hoop iron, and is simply a convenient stand in which four shallow wicker baskets, each two-thirds filled with cocoons to be treated, are placed on brackets one above the other. Over the top basket a clean towel is laid with the view of absorbing any drops of condensed steam which may drip from the inside of the drum cover, and falling direct on the cocoons might stain the silk. The boiler or pan which forms the base rests upon a tripod of iron, and is made slightly larger than the drum, so that when the latter is let down like a gasometer into its tank, the bottom will be under water, and thereby prevent an undue escape of steam. When ready for use the pan or boiler should be two-thirds filled with water, a sharp fire of the twigs and brushwood used during the education kindled beneath, and when full ebullition is in progress the baskets of cocoons are placed in the stand, the zinc drum let down over all into the water of the pan, and the boiling kept up without

cessation for twenty minutes. This interval having elapsed, the steam tap is opened, the drum is hoisted up out of the way, and the baskets removed, when it will be found that the chrysalides have all been killed—a fact easily ascer-

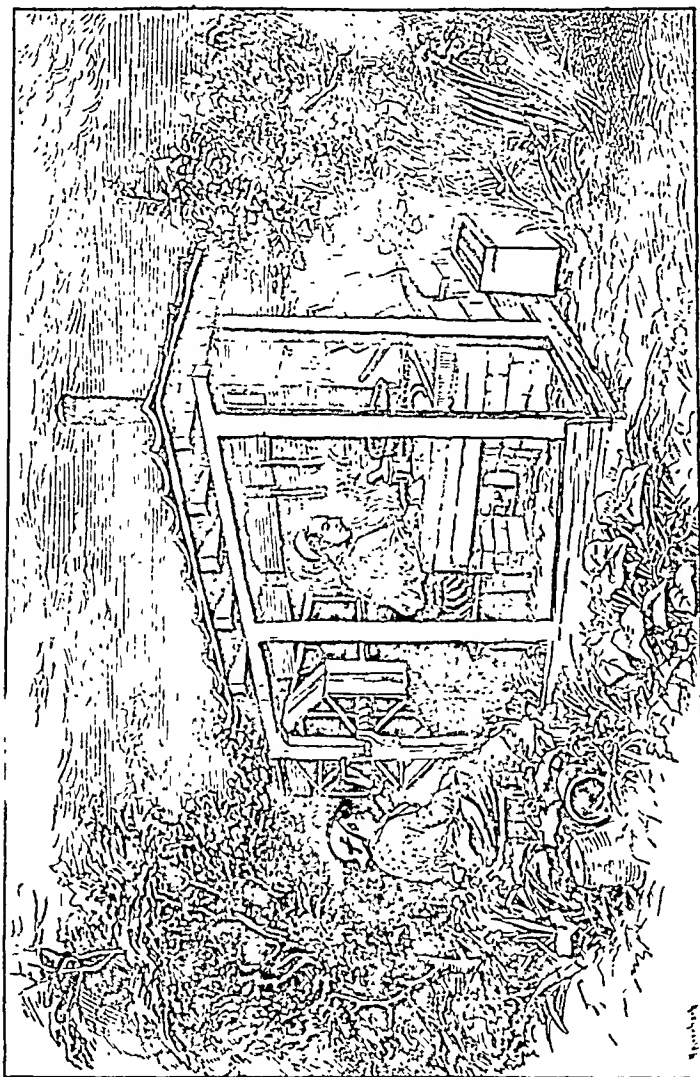


FIG. 21.—REELING SILK—BOUNADAT.

tained by cutting a few open or passing them on immediately to a reeler if at hand. The extreme simplicity of the apparatus, and the speed with which it performs its duty, has only to be seen to be appreciated. When first brought before the notice of the silk-farmers of Italy as a

patent a few years ago, its cost was seven hundred francs ; a small size, rather less than that described, is now made in Smyrna for about twenty-four shillings."

On removal from the steamer the baskets of cocoons should be emptied, after a few minutes' rest in the open air, on clean frames, and spread out in thin layers exposed to a draught, in order that rapid drying may result. In this condition they may be kept for years, if safe from moisture and vermin, or until wanted for the last process, that of reeling, a sketch of which (Fig. 21) will appropriately conclude this chapter.

CHAPTER VIII.

TURKEY CARPETS,

THE student of ancient manners and customs, possessing a very inquiring mind and plenty of leisure, might find an interesting line of research in trying to discover whether the Oriental habit of squatting on the ground on all convenient occasions, originally led to the invention of carpets ; or, if it was the first sight of the luxurious fabric that suggested the peculiar attitude all Eastern nations so evidently enjoy. The average reader, on the other hand, will probably feel quite satisfied to wait contentedly until the difficult point is settled, when informed that carpets were made in ancient Phrygia earlier than the tenth century before Christ. Long ere Homer sang, or the prophet Amos denounced the Philistines, there were rude looms for carpet manufacture in Asia Minor. In Asia itself, and in Africa, particularly in Hindustan and Tunis, the story of the industry's commencement is lost in dim antiquity. Carpet-weaving being thus of very ancient date in the East, it was to be expected that the industry would have reached, as it did, a high point of perfection centuries before the introduction of either the fabrics, or their method of production, into any part of Europe.

In the British Islands the rush-strewn floors of our ancestors held their position well through the twelfth century. It was affirmed against Thomas à Becket, Archbishop of Canterbury in 1160, as an example of his sumptuous and extravagant style of living, that every day during winter his gorgeous apartments were strewn with

clean hay or straw. Carpets were indeed quite unknown in those days, either in England or France, it being only during the Middle Ages that small strips, and the highly-valued rugs of Turkey and Persia, began to appear as altar-cloths in the abbeys; and later, in 1301, were laid down as prodigal luxuries at the bedsides of the rich. For more than three hundred years, few, except the wealthy, thought of using carpets to any extent, as, having all to be imported, their cost was great.

Although probably no earlier than Britain in the market as a purchaser of Turkey carpets, France seems to have been the first of the European nations to commence the manufacture, which she did about the year 1570 during the reign of Henry IV. The first attempt was made at Chaillot, a few miles from Paris, and the carpets were woven entirely of wool, worked after the style of velvet, like the modern products of Wilton. This branch of the trade the French managed to retain in their own hands for about one hundred and eighty years, when, in 1750, it was introduced into London by two of their discontented workmen.

In 1765 the Dutch carpet-loom had been adopted by several enterprising manufacturers in Britain, and a vigorous trade began to be pushed there, in which some French settlers joined, under the auspices of the Duke of Cumberland and others. A Mr. Moore, in 1757, carried off a premium from the "Society of Arts," for the best imitation of the Turkey carpet which had hitherto appeared; and since then the industry has spread over the earth and become a local calling almost wherever civilisation and manufacturing have taken root. During the past one hundred years the typical Turkey, Axminster, Wilton, and Kidderminster fabrics have been copied and produced all over Europe and in America; and in order that the reader may form a true conception of the importance of this great avocation in Great Britain alone, it may be stated that there are at present at work 250,000 hand looms and 72,000 power looms, the latter introduced in 1807. Taken together, these may be reckoned

as capable of producing about three millions and a half yards of carpet, thirty inches wide, per working day.

Notwithstanding all this manufacturing activity and tremendous competition, the carpets of Turkey, on account of their almost everlasting qualities, their softness, harmonious shading, tasteful grouping of colours, and usually quiet, unobtrusive effect, continue to maintain their high position in the estimation of buyers. Under these circumstances it cannot but prove interesting to the reader of the foregoing "Notes" to learn something about the production of Turkey carpets in Asia Minor, when assured that the information has been derived from the Messrs. Griffitt of Smyrna, father and son, whose firm has been engaged for half a century in the trade.

When a youthful pair, about to be united in the bonds of wedlock, visit for the first time the smiling tradesman who is being entrusted with the furnishing of their future home, and ask to be shown his stock of Turkey carpets, the articles displayed will probably be those of Oushak. Indeed, it may be said that the term "Turkey carpet" is in Europe almost exclusively applied to fabrics made at that place, although two other towns in Asia Minor—Ghiordes and Koula—each with a population of 12,000 persons and situated within a radius of 150 miles of Smyrna, are likewise engaged to a smaller extent in the same industry. There is a difference to be sure in the results, but it is unimportant—the texture of the Ghiordes carpets is closer, whilst that of the Koula fabric is looser than the masterpieces of Oushak; one description of the manufacture, therefore, may be considered applicable to all three places, although referring specially to the latter town.

This healthy seat of trade is situated upon a wide plateau over 3000 feet above the level of the sea, in the midst of one of the richest wheat and valonia districts in Turkey, presenting in its green corn-fields and verdant slopes, even during the scorching sun of July, a striking contrast to the parched yellow of the lower levels nearer the

coast. It contains about 3500 houses, of which 3300 are Turkish and the rest Christian, the whole, with the exception of some of the public buildings, being composed of sun-dried bricks and wood. Oushak is at present somewhat inaccessible to the ordinary tourist, being about seventy miles beyond the terminus, Alascheir, of the Smyrna and Cassaba Railway, and traffic now, as from remote antiquity, is conducted by means of camels, mules, and the despised pony of Jerusalem. Although one of the earliest homes of carpet-weaving, there is no such establishment as a factory in the whole town, in the European sense of the term, the work being done in private houses.

The wool from which the carpets are made is that of the fat-tailed sheep, obtained during spring from Turkoman tribes in the vicinity. It is washed in an adjoining stream by the men, and afterwards combed and spun by the old women of the town; nearly all the inhabitants are thus engaged and in the other branches of the industry. In order that the various coloured yarns may mingle together in the pattern, they are spun loosely, and to this cause may be ascribed the blended softness in the colours and design of a true Oushak carpet, as contrasted with the harder outlines and greater harshness in tone of some of those produced in Europe by power looms.

"A few years ago," Mr. William Griffitt wrote lately, "an attempt was made to introduce machinery for wool-spinning, but the result was eminently unsatisfactory. The carpets produced from the yarn thus prepared resembled European goods in being stiff and unyielding to the tread; accordingly, after a short time the spinning apparatus was abandoned, and the proprietor returned a poorer, if not a wiser, man." The difference, indeed, between an Oushak carpet and one made by machinery is of a similar character to that which even the uneducated eye perceives, between the hazy dreamy aspect of a beautiful and artistically-executed water-colour drawing and the self-assertive prominence of an oleograph.

When the fleeces are spun into yarn a local market exists for it on the spot, where, every Thursday, from dawn to sunset, a crowd of sellers and buyers assemble to traffic in the article.

In former times dyeing the worsted was practised by the weavers themselves, as may still be witnessed in Malta among the tapestry embroiderers, but at Oushak this has become a separate industry. It is also worthy of remark that, since the abandonment of the vulgarly bright colours in vogue during the reign of a recent Sultan, the dyers have returned to the employment of the old vegetable pigments formerly used—madder roots for the reds, yellow berries for the yellows and greens, valonia for cream colour and browns, indigo for blues, whilst cochineal, although not so important as it once was, is still in use. Thus the yarn is produced in every colour and shade required by the simplest means, ere the warp and woof are assigned their positions or the pattern and pile are arranged for the weavers, who are, without exception, women and girls.

The sound of the shuttle is not unfamiliar in many a British village to-day, notwithstanding the all-absorbing influence of the great steam workshops of Lancashire, Glasgow Edinburgh, Dundee, and other centres of the weaving trade; but in Oushak, where every private house is a spinning mill, a dyeing establishment, or a refuge for looms—where every member of the population is an artisan and the hum of labour is ceaseless—the music of that little instrument is never heard. This may read like a paradox, yet it is strictly true, as in the manufacture of those carpets it is on the deftness of human fingers alone that the beautiful results depend.

Rudely, if strongly, fashioned, the looms are seen in the court-yards of almost every house, standing under the shelter of earthen-covered roofs, or protected by overhanging upper floors and verandahs. There they remain all the year round, open to every wind that blows, and, even in the depth of winter, occupied by their industrious owners, their

daughters, hired workers, and apprentices, when the cold is so intense that numerous chilled fingers have often to be galvanised into sensation by the use of small pans of glowing charcoal. The looms consist of vertical or slightly-inclined frames supporting two horizontal rollers, placed about five feet apart, at which the weavers sit cross-legged side by side, each working about two feet of carpet width. Around the upper roller the warp, divided into two sets of strands by leashes fastened to a horizontal bar, is wound, and the ends secured to the lower one, from which the work is commenced, and on which the finished fabric is rolled. In forming the pile and pattern, little tufts of coloured yarns, taken from bobbins suspended above the weavers, are tied to the warp in rows, the woof passed by hand without the aid of a shuttle, when the pile and woof are driven closely together with a heavy wooden comb, and the tufts clipped short and smooth with picturesque-looking shears, in the manufacture of which Sheffield has had no share. For an average day's work of forty-four rows of pile so produced, the ordinary weaver is paid the equivalent of 4*d.* to 5*d.*, so that if the fruits of a day's industry are not excessive, neither is the remuneration. In comparing such wages, and the circumstances under which the work is done in winter, with the more liberal scale and amidst the greater amenities of climatically less-favoured lands, it will be admitted that the balance of gain and comfort is wholly on the side of the European artisan. On the other hand, the Asiatic is temperate and frugal, which too many work-people in a northern corner of Europe, which need not be more particularly alluded to, are not.

As might be anticipated, in an industry of such hoary antiquity on a spot which has never known any other, styles and patterns rarely change. Attempts have been made to introduce novelties, but without much encouragement, as fresh designs require to be carefully reproduced on a small scale, and the weavers lose much time counting the points, thereby curtailing the total of their day's work and reducing

the amount of wages to be received. On the other hand, the regular weavers of experience have all the old patterns indelibly imprinted on their memories, and can work continuously without pause or stoppage even to look at a model.

Meanwhile the great barrier to the more rapid development of the carpet, or indeed any other trade in this beautiful, rich, and fertile country—this lavish cradle of the human race—is the absence of a network of roads, and the excessive badness, with only a few exceptions, of those which exist. It has been already stated that for seventy miles there is no other transit for the beautiful and valuable carpets of Oushak except on the pack-saddles of animals. Under these circumstances merchandise, deserving of every care, is exposed to whatever changes of weather may occur during five or six days, as the stately pace of the camel, burdened with a bale of carpets weighing 280 lb., slung on either side, seldom exceeds two and a half miles an hour. The road is described as a mere track worn in the rock or through the volcanic soil, and exposed not only to the usual storms, but to the melting of the snows on Mount Tmolus, and consequently sudden floods of the river Hermus. It is understood, however, that the authorities connected with the large and important province in which Smyrna is situated are now alive to the great drawback indicated. Being aware of an evil is the first step towards a remedy, accordingly it is to be hoped that the day is approaching when the powerful steam road-makers getting into favour at home will soon be employed, or that the railway itself will shortly be extended to Oushak.

As illustrative of the strange and prominent part a mere carpet sometimes plays in the ordinary everyday life of the Turkish people, the following event may be narrated :—

On the 2nd July, 1885, a relic of rare preciousness in Turkish estimation was landed at Smyrna from a steamer which had just arrived from Jeddah, on the Red Sea. It was brought on shore under the eyes of the viceroy and governor, and received amidst the respectful and almost

reverential salute of a portion of the garrison, their officers, and a large crowd of the Turkish population. The relic proved to be a well-worn prayer-rug which was said to have been used by Mohammed 1253 years previously. Before his death, in A.D. 632, the article had been given as a memento by the prophet to a family in Mecca, and had by them and their successors been carefully preserved and passed on from one generation to another in the same line, until the last representatives in 1885 were two young men who quarrelled over its possession. The dispute waxed hot, and in order to annoy and bring down punishment on the head of his elder brother, the younger threatened to give information about the relic to the sherif, who, he believed, would instantly seize the sacred treasure and perhaps levy a fine. Not to be circumvented, but quite alive to the danger of his brother's menace, the holder of the carpet determined that if it must be delivered up it should only be to the Sultan himself at Constantinople. Accordingly, collecting his proofs together, he quietly slipped away from Mecca with the rug carefully packed, except one corner left visible, and reached Smyrna on the date already indicated. By some means not divulged at the time, the nature of the man's mission was communicated to the governor, who, along with the viceroy of the province and a large number of officials and soldiers, were in waiting on the pier when the steamer arrived. The rug was desired to be landed, so that the townspeople and neighbourhood might share in the good influence it was believed to carry in its substance, and in order that it might in turn be benefited by an ecclesiastical benediction at one of the mosques ere continuing its journey to Constantinople. This programme was carried out; the relic was taken ashore amidst an imposing military display, the donor conveying the package on his head some distance. It was then transferred to the head of an official of some rank, then to another still higher in the service, and so on, rising up the ladder of promotion until it reached the viceroy,

who also for a little way bore the fragment of old carpet aloft. The rug had now reached the mosque, where it was prayed over and blessed, but never removed from its covering, and the little corner left hanging out was enthusiastically kissed by thousands of people within the building and during its reconveyance to the steamer. This little incident, unimportant in itself, nevertheless affords a curious glimpse of the hold the Moslem preacher and conqueror of the seventh century still has upon the imaginations of modern Asiatics.

It is hardly necessary to add anything regarding the characteristic patterns and colours of Turkey carpets, as these are well known. In improving these points the gentlemen already named have done more perhaps than any other members of the trade. As an industry of prehistoric date, whose designs and colours have reached the present time through the vista of ages almost unchanged, it is a difficult task for even the most trusted and enthusiastic reformer to add one of his own, or attempt in the slightest degree to alter or modify the preparation of the other. Yet all that experience, intelligence, knowledge of the people and their language can effect, the Messrs. Griffitt, of Smyrna, have done and are still doing. The authorities at Constantinople as well as in Asia Minor certainly owe them and their distinguished relative, Mr. John Griffitt, of Bournabat, a debt of gratitude which it will be difficult to liquidate for, in the one case keeping alive and improving, and in the other resuscitating, two such valuable native industries as carpet-making and the production of silk.

CHAPTER IX.

EDUCATING THE SILKWORM.

THE reader who has digested the four preceding silk chapters, will not have much difficulty in realising the importance and interesting nature of the industry there introduced, and he will probably be ready to follow the routine of the nursery, from the moment the silkworm's eggs have been spread out to hatch, until the harvest of cocoons has been gathered, occupying in Asia Minor an average period of forty-five days.

"I have been engaged," says Mr. John Griffitt of Bournabat, in an official report dated Smyrna, July 5, 1882, to the Department of State, Washington, "I have been engaged for many years in raising silkworms, my object being the study of their diseases, and, after numerous experiments, I have succeeded in obtaining healthy *graine*, which is the first consideration in silk-culture. I was induced to make these trials in the hope of alleviating for the future the losses the peasantry of Turkey have suffered during the past twenty-five years. Endeavours have also been made to interest the successive governors of the vilayet of Aïdin, in which Smyrna is situated, in my work, in order that I might obtain the moral encouragement of the Porte, but thus far without much success.

"The loss suffered by Turkey since 1857, when the silkworm disease first spread so violently, is incalculable. I remember the time when the wife of every gardener in the vicinity of Smyrna, obtained from her crop of cocoons a sufficient return to enable her to pay for the clothing of

her family for the entire year; but disease swept away our beautiful indigenous races, and this branch of industry was almost wholly abandoned. Many mulberry trees were uprooted, and those retained were kept, not for their leaves or fruit, but solely for the use of their branches. There were at that time in Smyrna three large silk-reeling factories driven by steam, where hundreds of women were employed; but latterly, for want of cocoons, the industry had to be relinquished. Presently the Japanese race was introduced to fill the gap, but only with partial success. It was found that the difference in the yield of silk between the Turkish indigenous and the imported Japanese worms was very great, requiring at least double the number of the latter to produce the same weight in cocoons; that is to say, if it needed 250 fresh Turkish cocoons to weigh one pound avoirdupois, 500 of the Japanese race were required, and the quality of the silk was found to be much inferior.

"Some years ago I obtained a quantity of indigenous *graine* of a very fine race, but unfortunately it was much diseased. I raised the worms from the moment they were hatched, in separate cells, in order that those contaminated might not infect the healthy, as it never happens that all the eggs produced by a diseased moth are themselves diseased, and from the few sound specimens I acquired my present robust race,* which I have since continued to improve. It is in every way superior to all the other varieties I have raised, not only in vigour, but likewise in the weight of the cocoon and the quality of the silk it yields. From one ounce (of thirty grains of eggs) I obtain regularly from 150 to 155 lb. of fresh cocoons, 12 lb. of which, taken from the brushes where they have been spun, produce over one pound of silk of the finest quality, while the loss in double cocoons is only from four to six per cent., whereas that connected with other races has proved to be from fifteen to thirty per cent.

"In March I have my silkworm nursery thoroughly cleaned

* *Vide* Chapter XIX., 'The Bournabat Silk Harvest of 1885.'

out and whitewashed, while all the utensils are exposed to a prolonged sulphur fumigation. Towards the end of March the mulberry tree in this climate begins to bud, and when the leaf attains the size of a silver dollar I place my *graine* in thin layers in a room heated by an earthenware stove, bringing the temperature gradually up to 70 degrees Fahr., and taking care that a vase filled with water is always on the stove. In from six to seven days incubation commences, and continues in progress for four or five days more. The last day's issue I always destroy, as, although the worms may be neither diseased nor sickly, they are always few and weak. Each day's issue I keep apart, and to the first worms appearing I give two feeds of leaf cut very thin with the knife (Fig. 18); and to each subsequent day's presentation of worms an extra meal. The first day's births I place on the lowest frame of the stand (Figs. 20 and 28), those of the second day on the one above, and so on until all the worms have been provided with quarters according to their ages.

"My object in this arrangement is to stimulate and enable the last-born worms as well as those earliest hatched to arrive at their first moult together, as the higher their situation on the stand the greater is the degree of heat to which they are subjected, which, allied with the extra meals to the younger worms, equalises the growth of the whole, and brings about the desired regularity so necessary in a good education. The leaves are shred more or less finely for the worms up to their third age, after which they are administered whole. During the second, third, and fourth ages I feed my worms four times a day, at 5 and 10 A.M., and at 3 and 8 P.M.; in their last age feeding is continuous from 5 A.M. to 11 P.M.; and when my large nursery is in full operation I employ extra hands to continue the supply of food all through the night.

"An important point to be observed throughout every education is to give the worms an abundance of space, especially while they are still in their earlier ages. In

educating for silk only, I allow the worms hatched from one ounce of *graine* during their

1st age, an area of $2\frac{1}{2}$ square yards,				
2nd	"	"	5	" "
3rd	"	"	10	" "
4th	"	"	25	" "

and when in their fifth age, I suffer from 500 to 600 worms to occupy each square yard of frame space.

" Another leading feature in successful sericulture, which cannot be too strongly impressed upon the embryo silk-farmer, is, that the leaves of the mulberry ought always to be gathered, if possible, *after* the dew of the night has evaporated, and he should on no account allow superficially wet or damp food to be given to his worms. If rain has fallen, or the dew been copious, the leaves had better be allowed to dry before being plucked.

" Purity in every stage of this industry is all-important. My frames are cleaned twice during each of the second, third, and fourth ages; once immediately after their first meal, and again the day before each moult. This is done easily and quickly by the aid of pierced papers (Fig. 19). The last age of the silkworm is undoubtedly the most critical, and its treatment then should be most careful and judicious. At this period of its life the worm devours enormously, or twice as much food as during its previous four epochs; consequently, the copious litter and free evacuations which occur would speedily render the air of the nursery impure, offensive, and unhealthy for the educators, were rigid cleanliness not everywhere observed. In order to accomplish this state of purity, the frames ought to be frequently denuded for a time of their population, and all the remains of food and droppings cleared away; dilute chloride of lime, or permanganate of potass should stand in vessels in each corner of the *magnanerie*, and be frequently stirred during the fourth and fifth ages; and means should exist of continually renewing the vitiated atmosphere with fresh air."

Such are Mr. Griffitt's general instructions to the silk-farmer, and before entering upon his more detailed formula, it may prove useful to inquire casually into the methods pursued in France and Italy.

In these countries the period of incubation seems to be rather longer than the average of Asia Minor, as, according to good authorities, it is generally about the tenth day that the worms issue from the eggs. They are at once supplied with finely cut leaves so that as many raw edges as possible may be presented to tempt their young appetites. During the next five or six days the worms are fed every six hours and kept clean. At the end of this period the consumption of leaves, according to some writers, will have been from 7 to 15 lb. per ounce of eggs hatched, when the worms pause for twenty-four hours to cast their skins, which have become—like the waistcoat of an alderman at a civic feast—too tight to contain their increasing corpulence. This suspension of feeding is called the “first sickness,” and precedes the entrance of the worm upon its “second age.” The old skin having been moulted and all litter cleared away, the worms renew their diet vigorously upon an increased area, and eat continually for four days, at the termination of which they will have accounted for 20 or 30 lb. of food, and again feel the necessity of larger integuments, culminating in a second sickness. For about a week the “third age” endures, and on the eleventh day from incubation a third attack of sickness seizes the little gluttons, after they have disposed of 60 to 80 lb. of leaves. On or about the seventeenth day another moulting happens, after which the trencher performances of the worms are simply marvellous. By the 22nd day this “fourth period” is usually completed, and the tyro to the industry will find it difficult to believe that from 120 to 160 lb. of food has been devoured; but if so, what will be his astonishment in other ten days, at the termination of the “fifth age,” to learn that during that short period 1100 to 1200 lb. of nutriment has been absorbed?

These figures, from a French source, are, however, moderate when compared with the records of the deglutition of the silkworm in parts of Italy. An Italian savant says: "If, at the first age, the consumption is estimated as 1, at the second age it will be 3, third 10, fourth 30, fifth 175." Casting about for an actual illustration of this formula, I found Italian averages of which the figures are almost identical. These state that the worms from one ounce of healthy eggs should eat during their

1st age of 5 days about 7 lb. of leaves.

2nd	„	4	„	21	„	„
3rd	„	7	„	70	„	„
4th	„	7	„	210	„	„
5th	„	17	„	1300	„	„
Totals...		<u>40</u>	„	<u>1608</u>	lb.	„

A little further on in this chapter the reader will find that even this extraordinary result is beaten hollow by the ever-hungry worms of Mr. Griffitt's renovated races, and the conclusion will probably be that a large consumption of food depends, not only on the temperature and the particular breed, but also on the robustness of the race, their surroundings, and the intelligent manner in which the creatures are fed. On this point I find that in the Drôme, when the entire duration of the silkworm's career of eating is comprised within thirty days, the five periods are as follows:—

The 1st age lasts for 5 days,

2nd	„	4	„
3rd	„	6	„
4th	„	6	„
5th	„	8	„

Total...29 days.

But under the stimulus of greater heat, the utmost cleanliness, and more frequent feeding, the ages are shortened, and the whole period of education may be compressed into twenty days, whereas when the temperature sinks below twenty-five degrees of centigrade the time is expanded to forty-five days.

The European silk-farmer may not have much to learn from the Chinese, but on the necessity of copious and frequent feeding he will find the practice of the Celestial perfectly sound. A Chinese author says,* "The reason why the farmers take so much pains to make these little insects eat so much and so often" (worms in China are fed every half-hour) "is to forward their growth and make them spin the sooner: the great profit which they expect from these creatures depends upon this care. If they come to their full growth in twenty-three or twenty-five days, a hurdle covered with worms, whose weight at first was one mass" (slightly more than one drachm), "will produce twenty-five ounces of silk; whereas, if for want of proper care and nourishment, they do not come to perfection in less than twenty-eight days, they will yield but twenty ounces, and if they are a month or forty days in growing, they will produce only ten ounces." Another Chinese writer remarks that the same number of worms which would feel quite satisfied with one pound of mulberry leaves previous to their first moult will consume 183 lb. during their last feeding interval, before they commence to spin; and that at this period over all they eat *ten times their weight in a day*.

In a work by Debernardi, entitled 'El Filatoresta Serico,' the author, who seems to have devoted considerable attention to the subject, gives the following precise directions for silkworm-feeding. He says that during the first and second ages the diet should be three meals a day, administered at equal intervals. During the third age the first meal should be given at sunrise, the second at mid-day, and the third at sunset; but about the fifth day, when the worms show symptoms of moulting, only one meal should be given, in order that no food may be left over to ferment on the frames. The author is indefinite as to the fourth age, merely saying that three or four meals a day may be given; but of the fifth he remarks that the first two days' meals ought to be light, but equal in number, and, when the

* Vide 'Balfour's Cyclopædia of India,' p. 1703.

appetites of the worms have reached their culminating point, an extra feed should be offered.

Miss Isabella Bird, in her 'Unbeaten Tracks in Japan,' says, "The mulberry leaves with which they (the worms) are fed are minced very fine and sifted, so as to get rid of leaf fibre, and are then mixed with millet bran. The worms on being removed from the papers are placed in clean basket trays over a layer of matting. They pass through four sleeps, the first ten days after hatching, and the interval between the three remaining sleeps is from six to seven days. For these sleeps the most careful preparations are made by the attendants. Food is usually given five times a day, but in hot weather as many as eight times; and as the worms grow bigger their food grows coarser, till after the fourth sleep the leaves are given whole. The quantity is measured with great nicety, as the worms must neither be starved nor gorged. Great cleanliness is necessary and an equable temperature, or disease arises; and the watching by day and night is so incessant that during the season the women can do little else. After the fourth sleep the worms soon cease to feed, and when they are observed to be looking for a place to spin in, they are placed on straw contrivances on which they spin their cocoons in three days."

It will doubtless be remarked by the critical reader who has digested the foregoing quotations, that material differences seem to exist between silk-farmers regarding the total length of the silkworm's gustatorial life. Between twenty days and forty-five days, he will say, is surely too wide a margin; if the first is correct, the second cannot be. Nevertheless the explanation is simple, although probably few sericulturists are acquainted with it. The length of time occupied by the education ought to depend mainly on its object; should that be silk alone, then the worms may be stimulated, by high temperature and frequently offered food, to run their course in the shorter period; but if the farmer desires robust eggs for reproduction, or for sale to his neighbours, he will keep his *magnanerie* cool throughout

the entire period, and let his worms have a sufficiency of food without stimulating their appetites.

I come now to Mr. John Griffitt's system of education in detail, and, as formerly, I shall, as far as possible, adhere to the text of the manuscript with which he has entrusted me. He says :—

INCUBATION.

As soon as the mulberry tree begins to bud, the *graine* is placed in the hatching-room, which is heated by means of an earthenware stove, and the temperature gradually raised to 70 degrees Fahrenheit.* A frame (Fig. 20) is hung from the ceiling at a height of forty-two inches from the floor, upon which a clean cotton-cloth has been tacked, and on it the eggs are evenly spread out. The object in suspending the arrangement from the ceiling is to defeat the attacks of mice and ants, both of which vermin are fond of silkworms' eggs, and are specially partial to plump young worms. When the mulberry leaves have attained the size of a penny, the fire in the stove is lit, a vase of water is placed upon it, and the first operation is thus inaugurated. As already mentioned in a former chapter, for small incubations the little box (Fig. 17) is used, and it should be placed in the bedroom of a responsible attendant, in order that it may receive notice during the night. Into this cylinder the *graine*, thinly resting in card boxes, is laid, and over each box a piece of tulle is placed, with the object of affording the young worms a temporary resting-place as soon as they are hatched, and giving the means of readily lifting them without injury. On the fifth or sixth day, should the heat have been properly maintained in the hatching-room or in the incubator, the worms will begin to appear, and in the course of five or six days more the incubation will be complete. The first few worms that issue have hitherto been regarded by sericulturists as merely the pioneers of the body, and have usually been

* Mr. Griffitt uses several thermometers, but Fahrenheit's is the one whose indications appear in his manuscript.

sacrificed. This is a mistake. They ought to be carefully cherished and reared by themselves, as they invariably prove to be the most vigorous of the colony. Indeed, the silk-farmer will find it to his interest to impress upon his educators the value of these worms, and to reward such girls as may take the extra trouble of rearing them to maturity. The eggs which in time will result are always of robust vitality, and may be expected the following season to reproduce all the valuable points of their race.

FIRST AGE. (Fig. 22.)

The first age is the period of five days which elapses between incubation and the first sickness and moult. Hatching usually begins at an early hour of the morning, and the appearances are most numerous between six and eight o'clock. When the incubation for the day is over, say about nine A.M., whole, dry mulberry leaves are placed for the young worms to crawl upon, which they immediately do, and as each leaf receives a fair quota of occupants—care being taken that the numbers are about equal—the leaves with their little colonies are placed on a frame in the same room. Thus the process of transferring the young worms, from the hatching-frame on leaves, and from the incubator on squares of tulle, goes on until none are left, when they are fed altogether with finely-shred food scattered thinly and equally over them, so that all may receive enough. At this stage, and during the next two ages, care should be taken that before the mulberry leaves are cut the blossoms are removed, and that no yellow, or even slightly withered, fronds are used. "

Now commences a system of creating artificially, as it were, uniformity in the size of the worms, which, if properly attended to, is calculated to save the educator an infinity of trouble afterwards. This is effected by graduations of heat and a little extra feeding. The whole of the first day's issue of worms ought to be placed on the lowest frame

of the stand, where the temperature of the chamber is least ; those of the second day on the one immediately above ; and so on until the fourth day ; but the fifth day's worms should be destroyed, as they are generally weak, and not worth the trouble of educating.

The feeding should be conducted thus :—

<i>The worms of the</i>	<i>should receive</i>	<i>Hours.</i>
First day	three feeds at	8 A.M. and 2 & 8 P.M.
Second day	four „ 7 & 11 „ „	3 & 8 P.M.
Third day	five „ 7 & 10 „ „	1, 4 & 8 P.M.
Fourth day	six „ 6, 9 & 11½ „ „	2, 5 & 8 P.M.

By this method the worms of the last, as well as of the intermediate days' issues are stimulated to reach the same degree of development as those first hatched, through the agencies of greater heat and more copious food ; the result being that all are ready together, about the tenth day, to commence their first moult, instead of performing that operation in little successive batches.

At this period the worms are not a quarter of an inch in length, and are peculiarly sensitive to changes of temperature ; consequently it is advisable always to keep them in the smaller room in which they may have been hatched until after their first moult, when they can be safely removed into the nursery, where the thermometer should indicate not less than 68 degrees.

This illustration* (Fig. 22) shows the progressive size and appearance of the average silkworm from the moment of incubation to the end of the first period or "age," which lasts variously from five to eight days, the last worm of the series exhibiting its attitude at the first moulting of its skin.

The First Moult.—Five or six days after incubation the first moult occurs, the appetites of the worms having gradually decreased beforehand, until their food is left untouched.

* The sketches of the ages of silkworms have been taken from a sheet prepared in Milan and published at Smyrna, by M. Jean A. Topuz, in 1868.

At this stage they attach themselves to the leaves, upon which they may happen to rest, by silken threads; their skins shine like a well-packed sausage, and they raise their heads (see last worm of Fig. 22) and remain for a time seemingly immovable. When the educator observes these symptoms in a few of the worms, the usual feed is immediately diminished, and the shuffling off of their skins, known by the whitish colour of their heads and yellowish hue of their bodies, is the signal for the supply of cut leaves to be stopped entirely, until the whole colony appear in their new attire. In this dormant state from twenty to forty hours may be spent, and the accompanying fast does no injury. There are always in every education some worms more advanced, and others more tardy, than the rest in changing their integuments; nevertheless it is essential for the regularity of the industry that these outsiders should to some extent be disregarded, and the bulk brought forward as nearly as possible together. During this first age the general temperature should not be lower than 68 degrees, nor less than 66 degrees at the time of moulting, and the hygrometer ought to indicate from 70 to 80 degrees of moisture.

SECOND AGE. (Fig. 23.)

The educator being satisfied that the first moult of his worms is complete, he places gently over them sheets of pierced paper (Fig. 19), each with some finely-shred leaves on the upper surface. In a few minutes the whole of the hungry creatures will have crawled through the orifices to get at the tempting food, when they may be easily removed to a clean frame, the papers being laid upon it side by side with spaces of three inches between each, so as to extend the area. Should any of the worms remain behind under the litter, their moulting being unfinished, they should be destroyed if few in number, or kept separate, as in such cases there is a suspicion of weakness: and, as already said, uniformity in the growth and progress of the education as a

whole is to be constantly aimed at. With the view of still further promoting this end, the worms that occupied the lowest frame of the stand during their first age should now be placed higher, and so on until the relative positions of the colony have become changed. It should also be noted that the allowance of space for the worms hatched from one ounce of eggs should, during this age, not be less than five square yards, and their food should be presented four times a day, at five and ten o'clock A.M. and three and eight P.M., consisting of leaves shred larger than during the first age.

On the fourth day after their moult the frames should again be cleaned, so as to enable the worms to pass through their second decortication under circumstances of purity, when the pierced papers are once more brought into use in the manner already described. Feeding should be carefully attended to; and as the worms will have grown considerably, the educator, new to the business, need not be surprised on finding that they will eat up nearly five times as much food as satisfied them during the former epoch. As before, whenever the symptoms of a second moult become apparent, the supply of nutriment must



FIG. 23.

be stinted, and entirely discontinued as soon as the pioneer worms have cast their skins. At this period the appearance of the little creatures is whitish with a shiny aspect, small dark muzzles, and their average length slightly over five-eighths of an inch. This second age lasts between five and six days, and for the sake of salubrity dilute chloride of lime, or frequently changed solution of permanganate of potash, ought now, and through the whole of the subsequent education, to be kept in each corner of the apartment. The ordinary temperature should be 68 degrees, that during the moult 66 degrees, and the indication of the hygrometer 70 to 80 degrees.

THIRD AGE. (Fig. 24.)

The completion of the second moult marks the beginning of the worm's third age, and this terminates when the skin has been abandoned a third time. An increase of size is now so evident that even the tyro will see the necessity of largely augmenting the feeding area. Accordingly, if five square yards was the allowance during their former period, the worms must now be allotted double the space, or ten square yards. The colour of the worms will have darkened

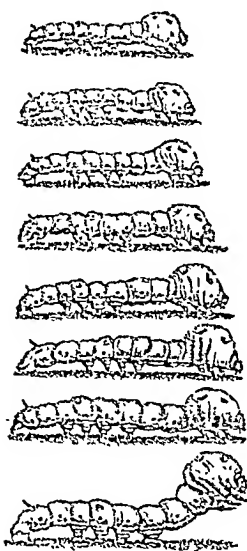


FIG. 24.

a little into a greyish tint, the muzzles will have broadened out and become of a dark maroon colour; and about twenty-four hours after the first individuals have ended their moult a careful cleaning of the frames must be undertaken. On the removal of the colony to clean frames the positions of the worms must be reversed; those occupying lowly places in the former age should be more elevated, while those in high situations during the past week must suffer a descent in the social scale, for the mutual benefit, as already explained, of the whole. When the

pierced papers with the worms on them are carried to the clean frames, they should be laid down lengthways, not side by side as before, and with a suitable interval between each, so as to take possession, as it were, of the full ten square yards to be allowed. Cut leaves are then sprinkled over the whole expanded area, and the daily feeding should, during this age, be at five and ten A.M. and three and eight P.M., the greatest care being taken that an equal distribution of the food is effected all over the frames, so that as nearly as possible each worm may receive the same quantity. Unless some trouble is taken in this

matter, irregularity in size and maturity will occur, as some worms, like many animals, are apt to eat faster and more voraciously than others, and so absorb during a similar period more than their share.

Meanwhile the litter from the vacated frames should be carefully removed, avoiding the raising of dust, and any worms found amidst the *débris* destroyed.

Five days after the last moult another cleaning of the frames is necessary in preparation for the fourth age, to maintain purity, and because a few of the worms generally commence parting with their skins in the course of the following twenty-four hours. When the signs of moulting are detected the quantity of food is again restricted, and withheld entirely as soon as the pioneers have finished. This third age usually lasts from seven to eight days; the ordinary temperature should be maintained at 71 degrees, and 70 degrees during the moulting period; and the hygrometer-reading ought to be from 70 to 80 degrees.

It is an interesting circumstance worth noting that, during this age, the hue of the silk which the worm, should it live, will afterwards spin can now with certainty be predicted. As the abdominal prolegs appear yellow or white, so will be the colour of the cocoon.

FOURTH AGE. (Fig. 25.)

Twenty-four hours after the third moult has ended the worms should be removed to clean quarters with a large accession of grazing-ground. The pierced papers used must have considerably larger holes than those hitherto employed, and, as before, the sheets should be laid down lengthways with liberal intervals between, as the feeding surface must now be dilated to twenty-five square yards. An easy and effectual way of accomplishing this necessary expansion is for the educator to lift off each paper when it has received about one-half its load of worms, replacing it by another to accommodate a similar number. In this way the increased

area is covered without touching the worms individually—a thing to be avoided as much as possible.

The litter is now removed with caution, and any worms found unfinished with their moulting, destroyed.

Four feeds a day, at five and ten A.M. and three and eight P.M., should be given, but the leaves should be left uncut and distributed in little tufts of a few on each twig. By so doing crowding is hindered, and ventilation in the immediate neighbourhood of the worms



FIG. 25.

promoted. During this age, which endures for nine or ten days under a temperature of 72 degrees, the frames must be cleaned three times, as, from the greater size of the worms there is a much larger consumption of food, consequently the perspiration and discharges become very copious. Great attention is also necessary to the constant supply of pure air, with an avoidance of sudden or considerable variations in the indications of the thermometer, which, neglected, might induce the trouble-

some disease called *flacherie*, about which some information will be given in another chapter.

On the sixth day the last of the three cleanings should occur, and on the seventh or eighth, when the pioneer worms have started to moult, the supply of leaves should be checked, and entirely stopped when some of them have finished. During the moulting the thermometer should indicate 71 degrees, and the hygrometer 70 to 80 degrees.

FIFTH AGE. (Fig. 26.)

This is the last period of the silkworm's little life of gluttony and retribution, and its span extends from the fourth change of skin until it has begun to spin its cocoon. Twenty-four hours after its old coat has been parted with, the worm exhibits a light brown appearance; it is about an inch and a quarter in length, with a considerable dark muzzle, and looks in every way what it has really become—the most voracious of all known creatures. At this stage the frames, on which the last moultings have been performed, must be cleared of litter, and the worms removed on pierced papers having the largest-sized holes. As the creatures more than double in dimensions in the course of the following ten or eleven days the fifth age lasts, provision must be made for a great augmentation of the space previously occupied. Accordingly each pierced paper should be carefully lifted when it is one-third occupied by worms, a repetition of the process being continued until all have been removed to clean frames, and the area covered should be fully eighty square yards, or say 500 worms to each square yard. This large allowance of space, as already indicated, is only required as a precautionary measure when the education is for reproductive *graine* alone. If it be for silk only, a larger number of worms per square yard may be allowed; but it should always be borne in mind that the fifth age is the most critical period in the silkworm's career, that crowding should be carefully avoided, and that any carelessness or defect in management at this epoch cannot be repaired, as is possible at an earlier stage, and may ruin the entire education. In the course of these ten or eleven days the worms devour more than twice as much food as they will have consumed during the whole of the previous month, consequently the effect of the slightest inattention, which at another period might prove trifling or temporary, now becomes momentous and probably fatal.

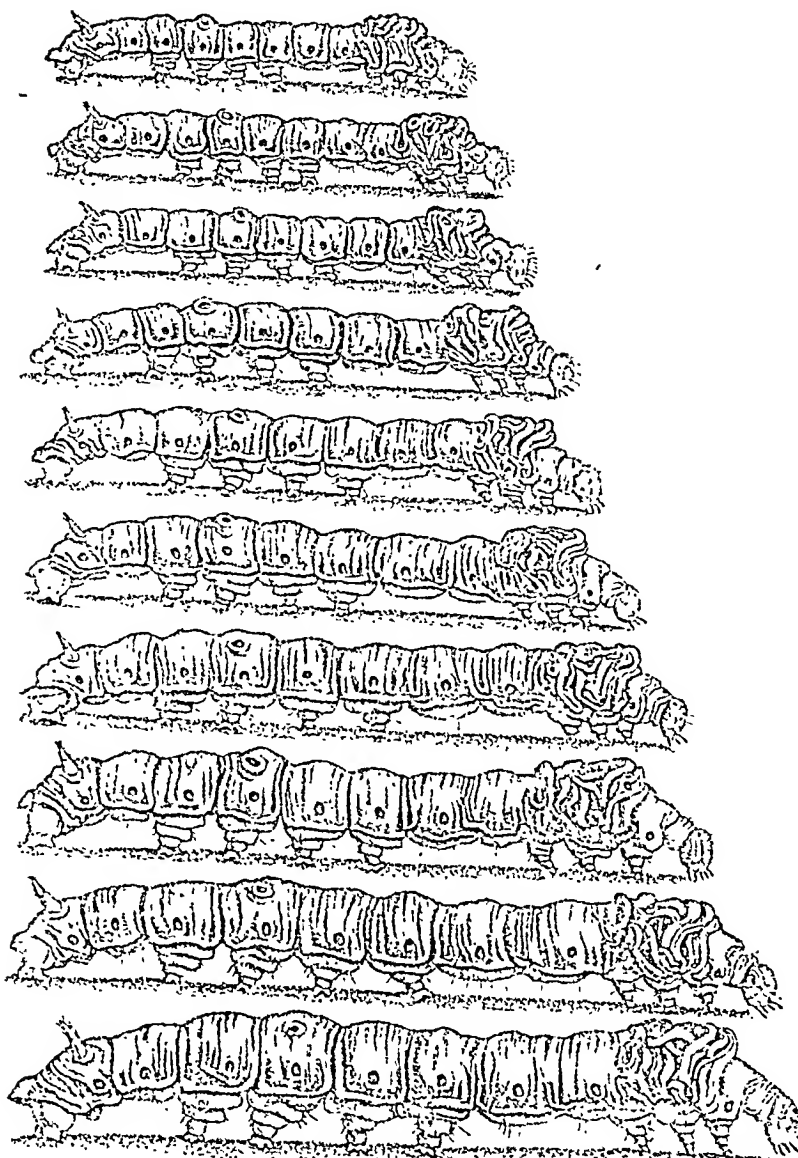


FIG. 26.



FIG. 27.

Feeding should commence each morning at four A.M., and be continued until ten P.M., with little clusters of leaves on their twigs. The frames must be frequently cleaned, and every effort made, by means of the copious admission of air, and the use of disinfectants, to keep the atmosphere pure, to offer no attraction to flies, and to deny all encouragement to disease. The brightest and most intelligent girls in the employment of the educator should be chosen, to make a continual pilgrimage among the frames, to pick out every worm evincing the least sign of weakness or offering to the eye an abnormal appearance.

Such worms, after careful inspection by the chief, should be unhesitatingly sacrificed if the slightest trace of disease be discovered. This last age is indeed a period of anxiety and of unintermittent toil, during which the attendants must be at their duties before four o'clock in the morning, and some of them need not expect repose till midnight. If during the eleven days the vigil lasts, the girls can manage a little sleep now and then, and snatch their meals as best they may, good and well; but they must expect no recreation or diminution of their heavy responsibility until every worm has swallowed its last mouthful and mounted to spin its silken mantle.

Shortly before moulting the hitherto brisk appetites of the worms seem to increase by "leaps and bounds," and for twenty-four hours the whole strength of the establishment will be taxed to the uttermost, to make ready the supplies for the thousands of voracious gormandizers. The effect of this rapid gorging is to stretch their skins enormously, so that when the final moult occurs the old integuments are thrown off without difficulty. Immediately the ravenous creatures recommence, and for forty-eight hours never pause from their eating for a second. At this time any stranger entering the *magnanerie*, where the worms from even one ounce of eggs have newly been fed, will be surprised to hear all through the apartment the sound as of the pattering of a gentle shower of rain upon a roof of

zine; it is the noise of forty thousand pairs of little jaws industriously sawing the mulberry leaves.

Such a rate of food-consumption, however, could not last, so the tremendous appetite of the worms is presently assuaged; the creatures shrink a little in size; the colour changes, and they become almost transparent. After a final evacuation, they seem like little sausages stuffed with silk of a clear amber tint, and their long feast is done. About the seventh day after the final moult, the pioneers, having ceased to eat, become restless (Fig. 27) and wander about the frames in search of suitable spots in which to commence their cocoons; but the careful educator is always prepared for this last draught upon his industry, as will be seen in the next paragraph. During the period just described the temperature should be 73 degrees, and the reading of the hygrometer 90 degrees.

Allusion has been made at an earlier part of this chapter to the quantities of food devoured by silkworms in France and Italy, as given by undoubted authorities; but those performances, one and all, must yield the palm to Mr. Griffitt's renovated races, whose usual consumption per ounce of eggs hatched is 2180 lb. For the sake of comparison, the particulars may be tabulated thus:—

	French average per ounce.	Italian average per ounce.	Mr. Griffitt's average per ounce.
1st age's consumption	15 lb.	7 lb.	16 lb.
2nd „ „	30 „	21 „	79 „
3rd „ „	80 „	70 „	211 „
4th „ „	160 „	210 „	409 „
5th „ „	1200 „	1300 „	1465 „
	<hr/> 1485 lb. <hr/>	<hr/> 1608 lb. <hr/>	<hr/> 2180 lb. <hr/>

MOUNTING TO SPIN. (Fig 27.)

About the seventh day after the last moult the final performance of the silkworm commences, and the experienced farmer is never caught unawares, because he

knows that the restless movements of the few pioneers are but the heralds of the following morning, when the bulk of the silk-carrying army will begin to mount. Accordingly, a few branches, cut and prepared some days beforehand, are laid horizontally over the worms in such a manner as not to interfere with the circulation of air, but to afford a convenient retreat for all that feel ready to begin the formation of their cocoons. In providing such branches there must be no protracted delay, as should the worms be

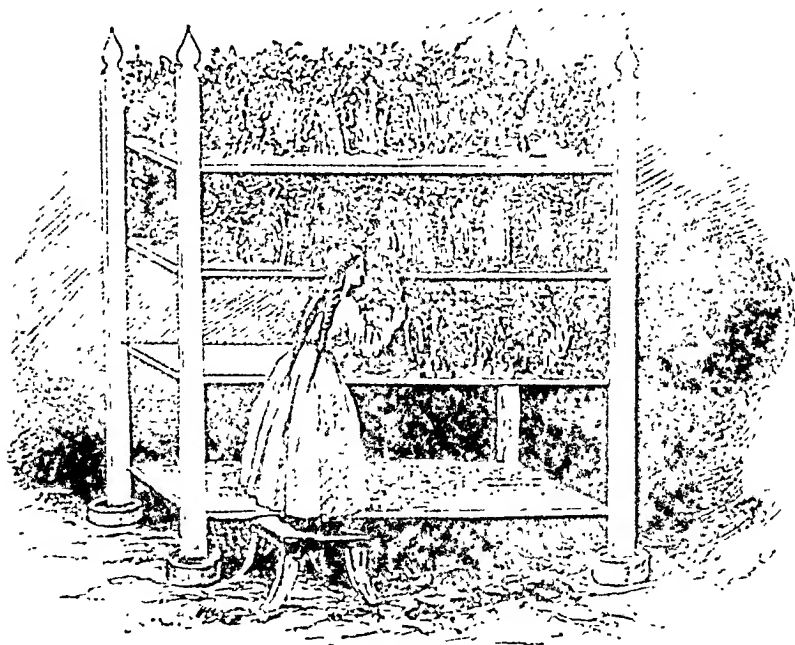


FIG. 28.—ARRANGING THE BRUSHWOOD.

unable to discover suitable nooks, they will resign themselves to circumstances and change into chrysalides without forming their cocoons at all. Thus their store of silk will be lost, with the probability that no subsequent care will carry the insects through their final metamorphosis, so that no eggs will be obtained either. Having these contingencies in view, the educator will have provided an ample supply of dry brushwood arranged in the manner depicted in Fig. 28.

It will be seen that the branches are arranged so as

to form a series of vertical divisions on the frames, the bushy or tufted ends being placed upwards and pressed underneath the shelf immediately above. Care should also be taken that the branches lean inwards, in order that any worms losing their hold after mounting may fall on the calico covering of the frame, and not on the floor. Being heavy with silk, and the latter accident occurring, the worm will probably burst asunder, when both it and its valuable store will be lost. It happens sometimes that robust worms meet with such falls of three or four feet, and are picked up seemingly uninjured; but in these cases they should invariably be set apart from the rest, and allowed to spin their cocoons in seclusion lest disease of any kind should follow; and on no account should they be reserved for reproduction.

By the eighth or tenth day after the last moult, the bulk of the worms will be ready and eager to climb, and for their further accommodation additional branches between those first placed vertically should have been introduced, the whole forming a series of miniature arches or bowers, each about six inches wide. The materials may be heath, broom, or any kind of furze; but preferably before all others, branches of pine, in which the worms seem to be most at home, where they appear to spin with increased liveliness, and from which the subsequent gathering of the cocoons is easy. These arches of greenery should not be set up at random, but made at right angles as far as possible, so as to encourage a free circulation of air; and there ought to be no crowding, but ample space allowed for every worm to spin.

At this important period the greatest care should be taken that there are no hungry worms among the climbers or elsewhere. When a seeming reluctance or slowness to mount is observed, food should at once be offered; and it sometimes happens that a few worms, which have already climbed into the brushes and smelling the fresh leaves displayed, return to get a share. In every case the educator

should make sure, before concluding that his charges have no more appetite left. Another feature in connection with this closing scene is, special attention to cleanliness. When the worms have entirely ceased eating, and are on the move up to or among the branches, the unusual exercise seems to prompt copious evacuations; and as the thermometer ought to show at this period, as well as throughout the formation of the cocoons, a temperature of 73 to 75 degrees, with the hygrometer at 90 degrees, the atmosphere of the nursery would quickly become unbearably foul, but for a constant removal of the litter, and an unlimited supply of warm, pure, dry air.

In the course of another day or so nearly all the worms will have mounted and commenced to spin; the few which remain should be removed to another frame surrounded with brushes, and fed afresh at frequent intervals, when they likewise will take refuge among the loose branches, on which they may be conveyed to the bowers beside the others. Even yet a few laggards, sometimes of the most splendid appearance, will be found still gorging. The sericulturist must have patience with these, and feed them as long as they seem inclined to eat. They will soon cease, when a basket of wood-shavings will afford them a suitable spinning-place.

GATHERING THE COCOONS.

No sooner have the worms found themselves in convenient spots among the branches than they immediately commence their cocoons, by attaching threads of silk to different points of the nearest pine needles. These lines form the steadying cables of the nest in which the industrious little weaver will undergo its last marvellous transformations. In different species more or fewer of these subsidiary silken threads are thrown out, to which the name of "floss" has been given; but, being in short lengths and much tangled, it can only be manufactured by a carding process, and treated in the same manner as cotton, which greatly reduces its value. Indeed, whenever the proportion of

floss amounts to one-fifth of the weight of the cocoon, seen in some beautiful white races and others, the sericulturist had better abandon any attempt to raise them, as, in the present state of our knowledge, they are unremunerative.

When the floss threads have been arranged to the worm's satisfaction, it contracts its sphere of operations, weaves the outer tracery of its dainty cell, in a few hours it is hidden from view, and, within four days of its commencement, the cocoon is complete and the worm is at rest. In the course of another day or so it would be perfectly safe to collect the harvest, but as it rarely or never happens that all the worms of an education mount and spin exactly together, it is judicious to delay gathering the cocoons until the eighth day from the date of the first climber's ascent. Even then it is good practice, before taking down the brushes loaded with their silvery and golden fruit, to select a cocoon here and there and shake it. Should it emit a hollow sound, it may be certainly assumed that the worm has become a chrysalis, and the whole may be removed ; otherwise a premature collection, by alarming the worms, would result in damage to the silk.

Those brushes which harboured the earliest worms are now taken into a different apartment, on the floor of which cloths have been spread, when all the dead and badly-stained cocoons are picked out. This is a necessary, but sometimes a most offensive duty, on account of cases of decomposition, or it may be disease. The diseased cocoons are readily distinguished by being of a blackish colour. They contain a dark, evil-smelling liquid into which the dead worms have become resolved, and any of this noxious fluid dropping on the sound cocoons will result in greatly depreciating their value. It is necessary, therefore, to get rid of these unsavoury cocoons as speedily and with as little handling as possible. In this manner all the harvest must be gone over, and should it be intended for *graine* rather than for silk, there will practically be for the farmer only two classes of cocoons on the premises—those which, after

a critical examination, are found to be in every sense perfect as to shape, colour, size and weight; and those which fall below the standard. The latter are steamed in the apparatus described in Chapter VII., and laid aside to dry for local reeling or export, while the fate of the former is depicted in Chapter XI.

CHAPTER X.

THE GREEK INSTITUTIONS OF SMYRNA.

WERE any excuse necessary for importing into these "Notes" something concerning an estimable and industrious section of the community—the Greek population of Smyrna and the surrounding districts—such a justification is supplied by the date upon which this chapter was drafted—the anniversary of the assertion of Greek independence on the 6th April, 1821. Events of a similar nature all the world over, deservedly bulk largely in the estimation of every people; and it will not be thought surprising that a race like the Greeks, once so eminently distinguished, afterwards conquered and enslaved by more powerful yet less polished nations, on finally regaining its liberty and being once more able to hold up its head among the freemen of the earth, should keep each recurrence of the grand event with every token of exuberant joy. Such had been the case on the present occasion. The churches had been crammed to overflowing; hymns of thanksgiving and prayers for King George had gone up to Heaven from many thousands of sincere hearts; the poor had for a time been made happy by the liberality of their richer compatriots; bands of music heading long processions of pretty children dressed in white and blue, the national colours, and never interfered with by the good-natured Turks, had paraded everywhere; hundreds of men and boys in every town and village with guns and pistols had exploded "villainous saltpetre" for two days, from "early morn to dewy eve"; yet all

passed off with holiday pleasantness, and without the faintest approach to a disturbance.

It is not, however, the object of this chapter to reopen the page of Greek history at the terrible epoch when Turkish exasperation vented itself in such horrors as the roasting alive of the brave Pope Diakos, who first unfurled the standard of rebellion; but rather to show how truly worthy the Greeks have since proved themselves to be of that freedom they gained after so much suffering, and to indicate in one direction what progress those of Asia Minor have made during the past sixty-five years.

A census of the entire population of Asia Minor—not complete when these notes were made—gave in 1885 an indication of 1,052,175 persons, of which number it is believed that nearly the half are Greeks, and of these 71,083 are located in the vilayet of Aïdin, of which Smyrna is the chief town. The same nationality is also largely represented in all the Turkish islands of the Archipelago, in the Turkish possessions in Europe, and in Constantinople itself.

Whilst there are doubtless many reasons why this once comparatively small people should at this present moment be found so numerous, and ably, represented all over Turkey, both in Europe and Asia, there can be but two main causes assigned for their rapid intellectual recuperation. These are, their exemption from the thralldom of degrading superstition, and their universal and boundless love of education. It may be said that they do not deserve the whole of the credit for this; that, as the Greeks of Asia Minor are not permitted to serve in the Turkish army and navy, they are forced to cultivate the arts of peace. This is a matter of little moment now. Their exemption from military and naval duty has undoubtedly led to a rapid increase of their numbers; but, for the widely-spread cultivation of their intelligence, and for their again, as formerly, becoming the commercial, professional, and artistic backbone of the Levant, we must

look rather for a reason to the inherent good qualities of the nation.

To those whose study of Greek affairs has been mainly confined to ancient history, it may seem strange that this once leading and dominant race should, after the collapse of the Roman power, have remained for so long a period totally eclipsed among the nations of Europe. But a little reflection and research will speedily solve the riddle by showing how, as in the case of the ancient Jews, war, changes of masters, and long vistas of cruel servitude were sufficient to degrade and almost barbarise a people. Every schoolboy knows how badly the Greeks fared during the fierce domestic struggles of the final Roman period, when their soil was often the scene of the most bloody and malevolent rivalry. It is no mystery either, how, when a period of settled calm followed the accession of Augustus and lasted nearly two hundred years, the Greeks quickly recuperated, became Christianised, built churches, and became missionaries. Had those piping times of peace only continued, Hellas, instead of being, as at present, one of the least important of the European family of nations, would probably have recovered much of her ancient dignity. But such was not to be, for the country became the hunting arena for Slavonians, Albanians, and other starved hordes from the icy north, who speedily annihilated Greek civilisation, so that successive changes of masters—the Venetians in 1204, and the Turks in 1355—only completed the national ruin of a once splendid race, whose degradation, counting from the capture of Corinth by the Romans, had taken 1501 years to accomplish. From 1355 to 1820 Greece continued under the heel of the Crescent, although in 1770 and 1790 futile attempts were made to shake off the Turkish yoke. In 1820, however, a third essay was crowned with success; and since 1829 the Greeks have been acknowledged by Europe to be an independent nation. Since then this resuscitated kingdom has had its ambitions, crosses and disappointments, like all other earthly institu-

tions. Its first president, Capo d'Istrias, was assassinated in 1831, but subsequent rulers have been more fortunate; the present King George, although not a Greek, is deservedly popular with his immediate subjects, as well as with the Hellenic people of Asia Minor.

In Smyrna some results of the regeneration of the race are specially observable in two splendid monuments of generosity, which would do credit to any capital of the world—the Greek Hospital, and the Greek Schools. Arriving in that town from Bournabat one morning in 1885, some friends kindly accompanied me on a visit to the dignitaries of the Church. I was introduced to, and was very courteously received by, Archbishop Basilius, the newly-appointed Metropolitan of Smyrna, and Director of the Theological School of Constantinople. He is a fine, intellectual, dignified-looking prelate of about fifty years of age, and has the character of possessing great learning. While the usual coffee and cigarettes were being absorbed, he asked a number of questions having reference to Scotland and its people, expressed himself much gratified at the visit, and asked for its repetition at an early date.

The next call, on the same floor, was made to Athanasius Kyrilos, Bishop of Christopoleos, the second in rank, a friend of the Smyrna people of all grades for more than thirty years. He is a most venerable and kindly old Christian, who has spent the chief part of a long life in simple works of goodness and mercy, to whom the hospital mainly owes its present condition of high efficiency. Being well acquainted with the friends who introduced me, he received them all with effusion, kissing some of them on both cheeks, and stating his pleasure at receiving the call. This most interesting old prelate, whose first name is Constantine, was born of Greek peasant parents at the village of Sevdikeuy, near Smyrna, in 1820. When only two years old, his father was murdered by some Turkish fanatics about the period of the Greek revolution. Although the Greek Christians of Asia Minor had taken no part in

the rising, the hatred of the Mohammedans was aroused and numbers of the former were slain, among whom were the relatives of the little boy destined later to become the Metropolitan Bishop of Smyrna. "Often have I heard eye-witnesses tell," said Mr. Griffitt of Bournabat to the writer in a letter, "of the thousands of victims subjected to torture, impalement and mutilation, numbers of whom might have saved their lives by embracing Islamism, yet who nobly preferred death to a denial of Christ. Much does Christendom owe to the Greek Church, which produced and sustained in their last agony such martyrs; and yet more to the Greek tongue in which the parables of Jesus have reached us. On the death of his (the present bishop's) father, a benevolent priest adopted the little orphan Constantine, taught him his beautiful mother language, and sent him to be educated at the best schools of Smyrna. He was thus prepared for, and enabled to enter, the Church of the Greek Hospital as a deacon in 1839; was consecrated a priest in 1847, at the same time becoming 'Economo' of the philanthropic establishment, which combines in itself an hospital, an asylum for the insane, and a reformatory school. This useful institution, supported entirely by the voluntary contributions of Greeks all over the world, has accommodation for 360 persons, and is open to every one: Jew and Gentile, Mohammedan and Pagan, alike receive its generous aid. Difference in faith, or none, have no influence; the sole password for admission is 'human suffering.' For thirty years Constantine devoted his whole energies to the service of this truly noble mission, and during that period its entire management as 'Economo' was under his ever vigilant eye. Cholera thrice visited Smyrna during his term of office. In 1864, when this scourge was ravaging the town and the hospital wards were full, I saw the bishop attending, consoling, inspiring, and encouraging the sick and dying. In 1879 this most worthy, self-sacrificing man was consecrated a bishop under the name of Christopoleos, when he received a salary of £60 or £70 a year, all of

which he spent in charity. It might be supposed that clerical duties, and the care of such an important establishment as the Greek Hospital of Smyrna, would have proved sufficient to occupy all his time; but his position as bishop necessitates his regular attendance at the Ecclesiastical Court, where he faithfully listens to and arranges the troubles and disputes of his flock."

After my introduction, and a second participation of coffee, the bishop was good enough to say that I was only a stranger to him in appearance, as he had read something I had written in his favour in the *Glasgow Herald* a year or two before. A copy had been sent him and translated into Greek by his adopted daughter, who had been educated by the good American missionary Mr. Hill, at Athens.

With a total absence of luxury in the apartments occupied by these two, each in different ways, distinguished ecclesiastics, there was an air of comfort, solidity, and repose surrounding them which seemed to harmonise well with their functions of daily teaching by precept and example, and was not out of place with the seemingly free and unrestrained admission of all and sundry whom I saw flocking upstairs and along the corridors for advice.

The celebration of Easter is always held as a special festival in the Greek Church, and as that great event in the history of the human race was close at hand, we were pressed to come and witness the spectacle from a window of the residence.* It is an open-air demonstration, always commences at midnight, is attended by many thousands of Greeks and others, and takes place amidst a blaze of fireworks and the firing of guns. To the pastors of Smyrna, this midnight orgie had long been a source of grief and

* The afternoon and evening of the 4th April turning out wet and stormy, and believing it impossible that the midnight *fête* could be held, my friends and I left Smyrna by a late train. At the last moment, however, the elements ceased from troubling, and the Easter-eve rejoicings occurred with all their usual splendour and noise, although we were not there to see.

anxiety on account of the licence into which it was so apt to degenerate, and the danger to property arising from the explosion of so much gunpowder, and the lighting of so many bonfires in the streets. They had endeavoured to stop the proceedings on several occasions, but had been wholly unsuccessful ; and I heard afterwards that at such times of interference it was the popularity of the clergy, and particularly of the bishop, which alone saved the ecclesiastical body from insult. Under these circumstances the Church authorities have ceased to oppose actively, and seek rather to guide quietly, the looser ramifications of the festival into less objectionable channels, by holding midnight religious services, varied by music and addresses, which are said to be overflowingly attended.

After about an hour's conversation on various topics, we visited the notable establishment over which the good old bishop had so long and ably presided. The Greek Hospital is adjoining, and is a most interesting institution, providing at present for the physical disabilities of three hundred and sixty persons, between the actually sick, the partly convalescent, and lunatics. Cleanliness, order, brightness, and quietude everywhere prevailed as we were conducted through each department by the obliging "Economo" or superintendent, Pater Seraphino ; and the sunken yet brilliant eye, the hectic flush, and the hollow cough of many a poor consumptive patient showed how necessary was the ungrudged care of which he or she was the recipient. Hospitals can never be too spacious ; so the purity of the air and surroundings in this noble building, the loftiness of the ceilings, the calm, sympathising looks of the nurses, their soft tread and kindly manners, such as one sees in kindred establishments at home, were all eminently gratifying, and calculated to cheer the heart of affliction, and spread the fame of this truly cosmopolitan refuge for the alleviation of human suffering ; for the ailing of all nations of every creed, or without any, are treated there gratuitously.

From the hospital to the Greek Schools is but a step or two. At present these ample halls accommodate about 790 pupils, who are taught—without fee if poor, although most of the parents pay something—all the usual branches of a commercial education, besides others required for a professional career. Such has been the success of the various professors in communicating knowledge to the rising generation, that certificates of proficiency from them are said to ensure admission to their happy possessors within the class-rooms of any college or university in Europe. Being a Saturday when this visit was paid, few of the students were seen, but the deserted building afforded a good opportunity for judging of the physical details, which appeared most efficient. The library and museum, although containing a large number of valuable books and manuscripts, relics of ancient sculpture, coins, curiosities, &c., are still in embryo for want of space, being encroached upon by the academic department; but this drawback will doubtless soon be remedied, as the buildings, through the munificence of the wealthy Greeks of Smyrna and other places, are being gradually extended.

On a subsequent occasion I paid another visit of several hours' duration to the library in search of local information, and was greatly pleased with the extent of its varied treasures, and with the kindness and urbanity of the librarian, M. Alexandros E. Kondoleon.

When one talks of the munificence of the Greeks towards such a valuable seat of learning as this, in which the institution previously alluded to largely shares—both the outcome of private gifts, donations, and bequests—the full meaning of the words can hardly be grasped, without an illustration or two to show that the rich of this resuscitated and rapidly reviving nation are as bountiful as the noblest in other lands, and that some of them do not wait to distribute their benevolence until the grave forbids them the possession of their wealth any longer. Joannes Marcello, a well-known Smyrna merchant in his day,

together with his amiable sisters, spent large sums upon the enlargement of the schools. In this object £12,000 were employed, and, on the completion of the work, property was made over to the trustees in perpetuity which yields an annual income equal to £800. The sisters have recently gifted to the academy the whole of their remaining possessions, retaining only a modest competency for life. Another family of princely generosity is that of Kieped Joglu, consisting of two brothers and a sister, still alive, who have already given the hospital and schools more than £20,000 ; while Vasilio Diogenes, some years deceased, besides aiding those institutions most liberally during his lifetime, bequeathed to them the whole of his vast accumulations—being without heirs—on the death of his still surviving wife. This gentleman was the founder and proprietor of the largest drapery, carpet, and general soft-goods business in all Turkey—an establishment where 200 young men and women are employed, and one of the sights of Smyrna. Before his death he was decorated by King George of Greece with the Order of the Cross, for his patriotism and splendid liberality ; and the employés in the warehouse show with pardonable pride, in a private room, a colossal oil painting of their late master wearing the badge of his sovereign's favour, by Paleologho, an artist of Mitylene.

It need hardly be added that those magnificent institutions are most ably supervised by a committee of Greek gentlemen, some of whom I met from time to time. Among these it is only courteous to the whole body to mention the name of M. Alexandre Christacki, the representative of an old aristocratic Smyrna family, who is at present, and has been for many years, the mayor of the Greek community there. At his house I enjoyed the first of the many hospitalities offered so freely during my stay in Asia Minor ; and it was in the same airy dining-room, in his society, and in that of his amiable relatives Monsieur, Madame, and M. Charles Pasquali, that I partook of the last, ere passing on board my steamer months afterwards to return home.

From these few notes and reminiscences the reader will have no difficulty in understanding the feeling of pride with which the Greeks of Asia Minor regard the institutions just alluded to, how kindly disposed they are towards strangers in whom they find sympathy, and how passionate the eagerness which pervades all classes for the spread of education, and in helping the impecunious sick towards convalescence. It is also a most pleasing task to record how free and full are the acknowledgments of the Greeks for any little help or encouragement, moral or otherwise, they may have received from other nations. Previously to the Crimean war (1854-1856) Greek sympathies lay almost wholly on the side of Russia; now, that grasping and faithless Power is without a friendly voice in Asia Minor. Why is this? Simply because the Greeks venerate and believe in the honesty and genius of Mr. Gladstone, virtues which in their eyes were unmistakably proven by his handing over to the Hellenic Government the Ionian Islands, when he might easily have absorbed them into the British Empire. Thus a simple act of national justice has produced its reward, and the distinguished statesman has no warmer admirers anywhere than among this enthusiastic people, who seem not to have a single Tory among them, and are never tired of hearing or reading about the great Liberal leader.

Another little reminiscence with the same bearing may not, although personal, be altogether out of place. One evening an official gentleman, M. Joanna Mavroidhy, Dragoman to the American Consulate, Smyrna, called at Bournabat, with the gratifying intelligence that the Sultan had decided to bestow a decoration on Mr. John Griffitt, as a mark of appreciation for all that gentleman had done towards rescuscitating the silk industry of Asia Minor. I happened to be absent at the time, but on my name being mentioned, M. Mavroidhy said impetuously, "Cochran! Cochran! Is your guest connected in any way with the great Lord Cochran, whose memory is cherished with affection by every patriotic Greek for having fought

along with the revolutionists during the struggle for independence?"

"The Scotch clan or tribe of Cochran," Mr. Griffitt replied, "is, I understand, quite a small one. There are only some half-a-dozen of the name even in the London Directory, and I quite believe that my guest is related, it may be distantly, to the distinguished naval officer you mention."

M. Mavroidhy then hummed the following stanza from a Greek war-song, the pronunciation of which may be written thus :—

"Ola t'amena arminizun me
Pania che me cupia,
Tu Cochran to carava
Armenizi me fotia;"

rendered in French by the singer as follows:—"Tous les bâtimens dans ce monde voyagent à voile et à rames, le bâtiment de Cochran voyage avec du feu du temps qu'il fait même calme;" or, put into plain English:—All ships the world over go by sails or oars, but the ship of Cochran goes by fire even when the weather is calm.

I was immensely amused, when I returned from a sketching and botanising excursion among the Bournabat hills, to be told this story, and to reflect that I had been thus unconsciously basking, in the minds of enthusiastic Greeks, in a halo of reflected glory.

Before leaving this theme it may save future genealogists trouble, and my posterity unnecessary research to point out here that Thomas, tenth earl of Dundonald, G.C.B., in his 'Autobiography of a Seaman' (1860), inclines to the belief that the first of the Cochran race was a Scandinavian pirate. It will be said that this is hardly an ancestor to be carried away with pride about; nevertheless to have sprung from an old Danish sea-rover is probably a better origin on the whole than from a metropolitan publican of a former age, like a certain arrogant Tory nobleman of the present date. The Cochran genealogy, which is admittedly very ancient, has a fairly good character at a later period than

that of the hoary Viking, in the person of Waldenus de Coveran, who flourished in 1262. He was followed by William de Coveran in 1296 and John de Coveran in 1346, all persons of consideration, with no taint of the boniface applicable to any of them. About the year 1386 the family name became modified to nearly its present shape, and in 1389 William de Cochran obtained from King Robert II. a charter of the lands of Cochran in Renfrewshire. The subsequent details are not important in presence of another consideration which is that, viewed in the light of the possible identity of the British nation with the long-lost Ten Tribes of Israel, the family of Cochran may turn out to be considerably older (if that is calculated to do the survivors any good) than even the distinguished Earl of Dundonald was aware of, being probably one of the most ancient upon the face of the earth. When the parvenu is on the outlook for ancestry, having already swept the old curiosity-shops and sale-rooms of all the battered armour and ghastly portraits in the market, to represent gallant forefathers in his hall and gallery, "who fought and bled on many a tented field," it is usual to apply at Herald's College to have the stamp of seeming reality in some way affixed to the dingy collection. This deceptive and immoral process need never obtain the faintest countenance from a Cochran, because his ancestry, many think, seem plainly indicated in Scripture. If the reader will open the Book of Numbers—and look into chapters i. 13; ii. 27; vii. 72, 77; and x. 26—he will find something about a certain Pagiel, the son of Ocran, a prince and captain of the tribe of Asher, who, as an early scion of the Cochran family,—as probably he was—makes the longest pedigree of the most ancient British aristocrat of no more comparative value than the London publican's pewter would be to his proud descendant's coronet.

To return, however, to the legitimate subject of the present chapter; after the name of Mr. Gladstone there is perhaps no other of a foreigner which falls upon the

intelligent Greek ear with greater melody and approval, or conjures up pleasanter memories, than that of the late Rev. Mr. Hill, an American, who for more than forty years laboured at Athens in the grand work of education. But before saying anything further regarding the efforts of this eminent clergyman, it is desirable to relate a story of worldliness *versus* philanthropy, which, told to me in the twilight, amidst blossoming orange-trees, lemons, oleanders, and peaches, on a lovely April evening, by my gifted friend Mr. Griffitt, with all his rare dramatic force and fire, must unfortunately appear tame by reproduction.

Many years ago two Americans of different denominations were sent to Athens in the interests of religion—one of them by the American Board of Foreign Missions, and the other by a society. The first of these missionaries commenced his career by a crusade against the doctrines and practices of the Greek Church, neglecting no opportunity of writing and preaching down everything connected with the national form of faith. The Greeks are a discriminating people, and therefore well able to gauge a man's honesty by comparing his preaching with his practice. They saw that to a bitter, railing tongue, this American united the gripping fingers of avarice; that a greed for money dominated his life rather than hunger for the saving of souls. Accordingly they lost respect for him, and his usefulness was soon at an end. Still it was admitted on all hands that he was a man of learning and ability, yet smothered under a quilt of worldliness; and it quickly became patent to all that he was grossly fanatical and injudicious to a degree.

During the war of Greek independence (1821) the island Scio, among others, was overrun by the Turks, and the inhabitants in some cases massacred. Among the captives saved alive was a little Greek maiden, who, with many children of misfortune, was brought to Smyrna and sold to an English gentleman. He, pitying the friendlessness of the innocent child, sent her to some relatives in Ireland, where she was edu-

cated and attained maturity. On her return to Smyrna, her protector gave her in marriage to a converted Jew, then a missionary under the auspices of a London society. Something occurred which caused the husband to abandon his sacred profession, and taking to commerce, soon amassed a comfortable competency. Having no children, he bequeathed the whole of his property to his wife, and died. His envious relations, learning about his prosperity, and hearing of his death, came to Smyrna from Constantinople to rob the widow and share the supposed plunder. They started an action at law against her for the recovery of the estate. She was arrested by the Turkish authorities, and placed in confinement; but her health failing, she was allowed, on the intercession of her friends, a change of air to an adjoining village. The injustice of the whole proceedings had by this time aroused the energies of several of the foreigners in Smyrna, who smuggled her away to Athens, where she could bid defiance to her persecutors. There she lived a highly-respected widow for many years, associating principally with the families of the various Protestant clergy and missionaries; and might have been living still but for the Jesuitical bigotry and callous cruelty of the reverend person already alluded to. One afternoon, a sad one for the widow, she had invited some friends to spend the evening with her in a little social converse and enjoyment, and was in the act of preparing for their reception, when the fanatic entered. He observed the signs of approaching festivity, and, with a gloomy face and hollow tone, said—

“You are about to give a tea party! Woman—I see death painted in your face! Instead of preparing for junketing, kneel instantly, and pray to the Almighty to forgive your many sins!”

The poor lady was indescribably shocked and alarmed. She had long laboured under symptoms of heart-disease; she gasped, fell backwards with a gurgling cry, and in a few moments was a corpse. But another tragedy was in the air, for, equally astounded and terrified at the result of

his awful folly, the unhappy man rushed home, and expired almost on the threshold of his house.

The Rev. Mr. Hill's efforts, aided, as he was, by an estimable wife, afford a striking contrast to the sad career and tragic death just described. From the day he landed at Athens, he identified himself with the improvement of Greek education, and in the course of a long life, of nearly one hundred years, gained the love and admiration of every member of that nation. Through the schools at Athens, established and conducted by these true philanthropists, nearly all the Greek lady teachers, now so widely spread through Turkey, over Greece, and in every village of Asia Minor, where even a few Greek families live, have passed. These ladies and young girls are alone an elevating influence, the value of which it is impossible to estimate. Some of the fruits have long been apparent, as, so religious, soundly moral, yet wholly unsectarian has the system of education proved, that many of the clergy of the Greek Church have had their children and young relatives trained there.

Well may the Greeks feel proud of their splendid institutions, and well can they now afford, in their manly prosperity, to lavish an overflowing measure of esteem upon those foreigners who, sympathising with them during their darkest days, helped them to knowledge in the childhood of their modern career.

CHAPTER XI.

MYSTERIES OF REPRODUCTION.

As it is all-important to the silk-farmer that the cocoons chosen for reproduction should be of the full average weight of the particular race to be reared, firm in texture, unexceptionable in colour, shape, and quality, it is desirable that he should possess the opportunity of selection from an ample education. But a large education and a considerable production of eggs are clearly incompatible with a copious harvest of silk. In other words, the farmer should make up his mind, at an early point in his technical career, whether he will devote his energies to the first branch of the industry or the last. He may, doubtless, do both after the "Jack-of-all-trades" fashion, but very soon he will discover that to succeed in a satisfactory manner in one section will prove quite sufficient to engage all his faculties. Presuming that the sericulturist's choice is unfettered, and that his aim is reproduction, the following epitome of Mr. Griffitt's experiences cannot but prove valuable.

Selecting the Cocoons.—Eight days from the commencement of the worms to spin, the cocoons are taken down from the brushes, and after the separation of all defective specimens, and the removal of the floss silk, an equal number of males and females should be chosen. The female cocoons are always larger than the males, and are of a continuous oval shape, with a tendency to being pointed at one end; whereas the males, in addition to being smaller, possess a decided waist, as if slightly squeezed in round

the middle—a peculiarity more or less marked in different species. All that are imperfectly or badly shaped should be rejected, as their defects in symmetry are almost evidence that the worms which produced them were weakly, if not diseased. For the same reason the silk-farmer should avoid those cocoons, however attractive to the eye, spun by worms which were tardy in mounting the brushwood, as the eggs laid by their moths when hatched the following season are liable to *flacherie* (Fig. 35). For three reasons double cocoons should always be repudiated, notwithstanding the authority to the contrary of more than one writer on the subject, because:—1st. Experience teaches that the moths issuing from these abnormal products transmit to their posterity a tendency to spin in the same objectionable manner; 2nd. Because such cocoons, being usually much thicker than single ones, the moths are greatly weakened in their efforts to pierce their way through, and are thus less vigorous and successful in perpetuating their species; and 3rd. On account of the difficulty of reeling the silk—suppose the moth stifled beforehand—the thread being tangled and interlaced, double cocoons, notwithstanding their fine appearance, are usually worth only about one-tenth of the price they would have commanded had they been single.

In short, those cocoons only should be retained for reproduction which are not only perfect to the eye, to the touch, and which pass the ordeal of the balance, but which are pale and strictly uniform in complexion; and in selecting white specimens the preference should be given to purity of colour, that is, to those having a bluish rather than a yellowish tinge. This remark, however, is not intended to prejudice the farmer against white cocoons which may have become accidentally stained while on the brushes, provided enough of the surface remains uninjured from which to judge. On the contrary, it is better purposely to pick out and make use of such soiled individuals for the *graine* harvest, because, while they may be perfect in other respects

for reproduction, in the market their silk would only fetch an inferior offer.

The finest of the crop having thus been set aside, a second discriminative examination is made for sex, and this is never difficult, as in almost every education in Asia Minor the males and females are found to be about equal in numbers. The selection is made by weighing several hundred cocoons accurately, with a view to arriving at a correct average, and supposing it proves to be thirty-one grains, all cocoons found

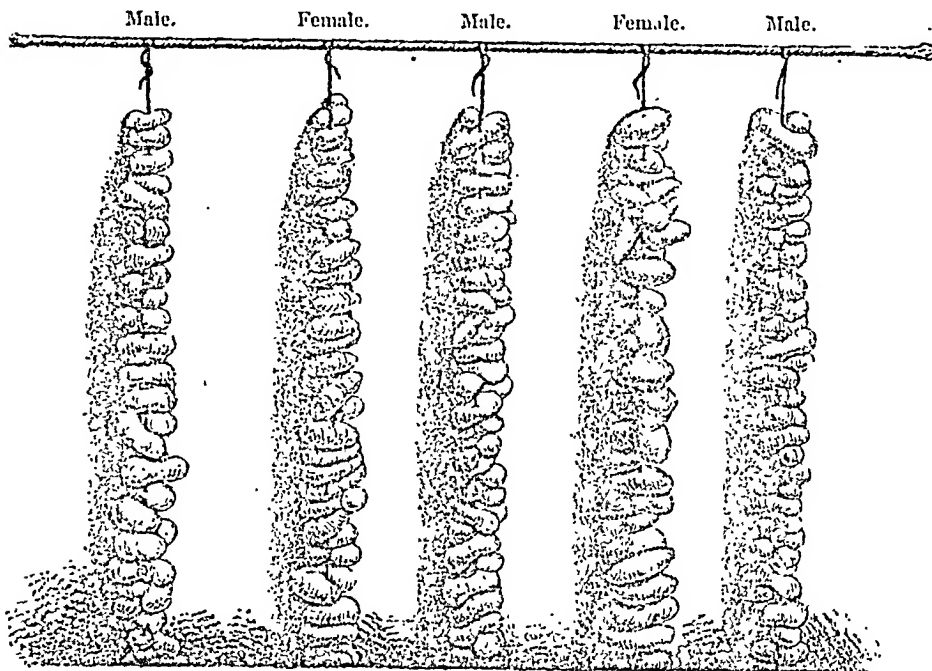


FIG. 29.—MALE AND FEMALE COCOONS STRUNG FOR REPRODUCTION.

over this weight are generally females, and those under it males. In this way a ready check upon the eye is always at hand; but after a time, when practice has taught experience, few farmers are likely to resort, except on rare occasions, to the scales.

Stringing the Cocoons.—The next process is arranging the cocoons on stout linen thread in strings of one hundred, and the operation requires to be done with both care and speed, so as to avoid injuring the living chrysalides within, and to

overtake the work. The needle is passed through the outside fibres on one side near the centre, for the reason that, as the moth invariably issues from one or the other extremity, its escape should be free and uninterrupted. One hundred cocoons should occupy each string, with the object of easy reckoning in view of estimating the probable yield of eggs. They should not be pressed down too closely one upon the other, as an abundance of air is needed for the respiration of the embryo insects within. The subjoined sketch (Fig. 29) will render unnecessary further detail.

In a large concern this stringing process occupies many hands, as the space of time allowed is limited; accordingly it has been thought that some modification of the sewing-machine might be adopted, but as yet without practical issue. The difficulty of such an adaptation, surely, could not be great, and a successful implement would prove such an important adjunct to the *graine* producer and get into such speedy and large demand, that perhaps the inventive faculty of some one may be stimulated, when the want is made known.

The cocoons having thus been satisfactorily arranged, each string of one hundred is suspended from a peg or nail driven into light bars of wood crossing a dry, airy chamber, at a height of about six feet from the floor. Each string should hang separately from its own nail, and in some *magnaneries* the custom is to have the females on one side of the apartment, the males on the other, but this is a mere matter of detail and is unimportant. It is necessary, however, that the utmost quietude should prevail, and no more light should be admitted than is necessary for the attendants to see their way among the suspended strings.

Issue of the Moths.—The period required for the transformation of chrysalides into moths varies according to the temperature of the chamber in which the cocoons have been hung. Should this have been the usual 70 degrees Fahr., the moths will commence to issue in twelve days; but should the temperature have averaged less, their appearance will be

correspondingly protracted. The beginning of the issue generally occurs in the early morning, and the period of greatest populating activity between six and eight o'clock; but from the moment that the first moths appear, the temperature of the room should be kept at 70 degrees.

Part of the furniture should consist of four frames (Fig. 20) covered with clean calico. On their issue the male moths should be placed on one frame, and the females on another. Each of the latter should be carefully examined for the detection of disease, and anything defective or abnormal; keeping in view the fact, that beautiful specimens of female moths sometimes meet the eye, whose only fault is a little dark, velvety-looking spot on the abdomen. Yet to all such, the nurseryman must be pitiless; they are corpusculous creatures, and should be immediately burnt, as well as every moth exhibiting defects. Beauty of form, and spotlessness, should alone prove the passport to continued existence, as even trifling imperfections reappear in an exaggerated degree in future generations, when defective moths are allowed to perpetuate their species. Sometimes, in place of spots, the farmer detects a greyish tint spread all over the body of the insect, and the tyro may in consequence imagine that it is eminently diseased. He will be wrong; there is no malady of any kind, but rather robust vigour.

The males are invariably smaller than the females, and are very active. From the moment they are fairly clear of their cocoons they keep almost continuously vibrating their wings, and never cease running about all over the frame until they have found mates. Larger, slower in their motions, and in every way more sedate and phlegmatic, the females evince no liveliness, but usually wait calmly about one spot until found by the opposite sex.

Coupling the Moths.—Healthy and handsome moths having been selected, an equal number of males and females are placed on the third frame, and when coupled, are carefully transferred to frame number four, which should be covered with the smoothest white cotton-cloth, and each

pair of moths ought to be placed at a distance of four inches from the nearest couple. For a time the little pairs must be closely watched lest any of them separate, as perverse males sometimes desert their mates suddenly, and prancing heedlessly among the other united couples create divorce and confusion. When this occurs the males should be immediately seized and restored to the same females; and it is rarely necessary to pursue a roving lover a second time, as, after the defeat of a first dash for liberty, he usually settles quietly, and there is no more trouble. At the end of six hours the couples should be gently separated; the females are removed to a sloping frame, and each allowed an area of four inches square upon which to deposit her eggs; the males are placed together in any convenient box until a number have been collected. From 110 to 120 healthy females are required to produce one ounce of *graine*, or in number about 40,000 eggs.

When the issue of the sexes on any occasion happens to be unequal, the overplus males should be retained in a cool, dark place in a perforated box until the following morning, when the balance is generally restored by a superabundance of females. Should the profusion be on the female side, it is best not to keep them waiting, but to pair them with such vigorous-looking males as may have completed their first six hours' duty. There need be no fear as to the result, as numerous experiments have proved that the same healthy male may be allied five times consecutively with different robust females, and the eggs have always proved fertile and sound. As a rule, however, each day's males may be dispensed with at the end of their first saturnalia, and as their function in life is now fulfilled, as they neither eat nor drink, and as in the course of nature they must die in a few days, they are given to domestic fowls, and are made a meal of by them with peculiar relish.

The smoothness of the cloth upon which the eggs should be laid has been alluded to. It is with a view to the safe and easy removal of the *graine* by gentle scraping after

the fabric has been moistened with alcoholised water to soften the natural gum with which each egg is surrounded. The *graine* when newly laid is of a pale yellow colour, which it retains for some days, then gradually deepens into a greyish tint, if vital, but remaining yellow if unimpregnated.

Before leaving this important subject, it is desirable to mention that, so far as is at present known, a perfectly healthy female moth cannot be contaminated by union with a corpusculous male. It has been acknowledged by the most distinguished sericulturists of Europe, that, provided the female is free from disease, her progeny will also prove robust, although the male may have exhibited doubtful symptoms. Nevertheless, the experience of Mr. Griffitt leads him to say that it is inadvisable to use any suspected males, as they may weaken, even if they do not taint, the succeeding generation. Indeed, the thirty-five years' ravages of the various silkworm diseases, which have so interfered with the silk trade of Italy, France, and Turkey, ought to teach the utmost caution and care to all future silk-farmers everywhere, lest they by any carelessness should invite a return of such disastrous maladies.

It is advisable, also, to name one exception to the plan of setting female moths to lay their eggs on an inclined surface. In the case of the Bagdad breed (Fig. 52) a different method is necessary, as the *graine* from this source, being perfectly dry and unprovided with gum, or any other means of adhering to a sloping frame, would roll off and be lost as soon as voided. Accordingly, the frame must be level upon which the females are placed, or they may be enclosed in little muslin bags.

Removing the Eggs.—One month after the eggs have been deposited, the following measures are adopted in Asia Minor for their safe removal :—During the previous day a quantity of soft water is boiled, and on its withdrawal from the fire, ten per cent. of strong alcohol is added, *i.e.* one gallon of spirit to each ten gallons of boiled water. The object of

this addition of alcohol is to clean the *graine* thoroughly by dissolving its natural gum, and thus facilitate its displacement from its resting-place. Each cloth having been well soaked in this water, is stretched on a clean, soft wood table, and the *graine* carefully scraped off with an ivory paper-knife. After being thus detached, it is subjected to a thorough washing in a glass or porcelain vessel with similarly alcoholised water, when it will be found that all the good, sound eggs will have settled at the bottom, while those unimpregnated, or which have been injured during removal from the cloths, float on the surface, and should be skimmed off and burnt. When the washing process is completed the water should be poured off, and the eggs emptied carefully into a fine sieve to drain. Finally, the valuable *graine* is spread out thinly on a frame in a shady situation and exposed to the air, where it should be frequently turned over with care until it is perfectly dry.

Preserving the Eggs.—After three or four days' exposure, the eggs are usually quite free from moisture, and should then be placed in boxes of fine wire-gauze, or perforated zinc. The best storing arrangement resembles a little cabinet for the reception of geological specimens. It is made entirely of perforated zinc, and consists of a neat case terminating in a ring, and fitted with a series of little drawers, each one inch in depth and perforated throughout, so that air may approach from every side when all are charged with *graine*. Into these tiny drawers the dried eggs are poured to the depth in each of only one-third of an inch (one centimètre). When all the drawers have received their complement, the case is suspended by the ring in the top to a wire attached to the ceiling of a dry, airy, cold room in the establishment, where no fires or other means of artificial heating are used, for the reason that the rigour of moderate winters is found to be beneficial, provided the *graine* is under cover, and secure from the effects of damp. Indeed, it may be mentioned that M. Roland of Switzerland, several years ago, set all doubts upon this delicate point at

rest, as he found by experiment, that even a lengthened exposure to a degree of cold only two degrees above zero exercised no prejudicial effect, and that during the following season the regularity in the hatching of eggs thus exposed, was all that could have been desired.

Consignment of Graine.—When eggs are required to be sent to a comparatively short distance from the nursery in which they have been produced, they may be placed in perforated card boxes, with the space between the *graine* and lids filled with clean wadding or cotton-wool to prevent oscillation. But should a considerable mileage intervene, and especially if the proposed consignment, of say fifty to one hundred ounces, must cross the sea, the arrangement of perforated zinc drawers already alluded to ought to be adopted. The drawers should be one-third filled with eggs, and the remaining space occupied by wadding. When all are complete and closed, the zinc box should be placed in a perforated wooden case, measuring four inches larger every way in the interior, and this space filled up all round with broken charcoal, not in powder, but simply in small pieces, and the perforated lid screwed on. The outer case should then be enveloped in wire-gauze and the address attached. By this method of packing, the outside air has free access to the *graine*, while the entrance of damp is arrested by the charcoal; the latter also aids in keeping the precious consignment—worth from one to two pounds per ounce—cool. As soon as the package reaches its destination, the wadding should be carefully removed from each drawer, the contents minutely examined, and if found safe, the box hung by a wire to the ceiling of a cool, airy chamber to await the arrival of the hatching season.

Such are the ordinary means of reproducing and preserving the healthy eggs of silkworms, which, with modifications at different times and in different countries, have been in use for a long period of years; but when disease became prevalent both in Europe and Asia, some additional methods were required. Indeed, the ravages produced

were so overwhelming that the industry in many districts died out altogether; and when the maladies at length succumbed to the scientific teaching of M. Pasteur, sericulture had to be in a measure restudied and re-established upon a foundation in which the microscope formed an important item. This eminent French physiologist, after five years of intense application, assisted by his wife and daughter, and some young demonstrators from L'École Normale, Paris, in a remote valley of the Cevennes, probed the secrets of all the known silkworm distempers, and devised a plan for producing absolutely healthy eggs, now known as "Pasteur's Cellular System," an abstract of which is as follows:—

PASTEUR'S CELLULAR SYSTEM.

Pasteur's method is based on the principle that "a moth exempt from corpuseles never produces a corpusculous worm." Each female moth being placed on a separate square of cloth when about to lay, to which it is afterwards pinned through the wings, it is a simple matter, with the aid of a suitable microscope, to detect corpuseles in the insect if they are present, when both mother and eggs should be immediately destroyed.

Summary of the System.—The first requirement is to obtain a supply of cocoons from, if possible, an indigenous race, as proving more remunerative than the Japanese. It is necessary for success, that the cocoons should have been selected from an education conducted with all the usual precautions and in the best manner, in which the vigour of the worms during the several ages had been undoubted; and, most particularly, an education where but few deaths had occurred from the fourth moult to the period of mounting the brushes to spin. Five or six days after the worms have climbed, one or two pounds weight of cocoons are gathered here and there from the harvest, and are taken straight to a room heated up to a temperature of 80 to 85

degrees Fahr. This amount of heat may be maintained by means of a stove, hot-water pipes, or any other suitable contrivance, provided a vessel of water is kept simmering in the chamber; and the temperature indicated must be continued day and night until the moths begin to issue. Should the sericulturist wish to proceed on a small scale, the little instrument, Fig. 17, will be found very convenient. On the second day after removal to this hot room, and each alternate day afterwards, about twenty of the cocoons should be carefully cut open, the chrysalides taken out, one by one crushed separately in a small mortar, and examined microscopically in the manner detailed further on in Chapter XIV. If ten per cent. of these chrysalides be found corpusculous, the entire quantity of cocoons of which they formed a part ought to be condemned as worthless for reproduction, and should be passed on to be stifled for silk; but should little or no trace of disease be detected, the whole crop may be considered fit for the perpetuation of the species.

It would be difficult, even with the aid of diagrams, to explain to the tyro in such microscopic examination exactly what appearances he should search for. For example, in a very young chrysalis, one may expect various corpusculous forms, some of which possess rather a vaguely defined, as well as a well-marked outline, as depicted in Fig. 32. Undeveloped centres of infection are represented in Fig. 33, which in a short time change into the brilliant corpuscles of Fig. 32. When such organisms are found in any degree in a young chrysalis, the eggs it may afterwards yield are certain also to be corpusculous, and if retained would simply help to spread disease.

When, however, the experimentalist passes from the chrysalis to the moth, much of the difficulty of identifying the corpuscles vanishes, as a diseased moth invariably contains large numbers of these parasites in the fully-developed form represented in Fig. 32.

As soon as the moths from the cocoons in the warm chamber commence to issue, their wings and eggs should

be separated, and each insect pounded to pulp in the mortar. This is examined under the microscope and a note taken, in a book kept for the purpose, recording full particulars of the exact number of corpuscles which appear on each disc. In order that a fairly reliable average may be obtained, not less than fifty moths should be thus examined; with the result that, if there should be only ten diseased moths found in one hundred, the eggs may be considered good commercial *graine* suited to the wants of the silk industry for cocoons alone. But on no account should such eggs be used to continue the breed another season, as *graine* intended for scientific reproduction should be wholly free from every trace of disease. The eggs laid by absolutely healthy moths exhibit no appearance of corpuscles under the microscope, and the worms hatched from them do not in the course of their education contract disease to such an extent as to prevent their spinning a remunerative crop of cocoons; nevertheless, as already remarked, even the suspicion of malady should shut out all such *graine* from the reproducing farmer's nursery; none should be used that has not been laid by perfectly untainted moths. It may be mentioned, however, that where an examination of one hundred moths shows ten diseased insects, this does not mean in practice that ten per cent. of the eggs are likewise smitten. On the contrary, it is found that the proportion of actually diseased *graine* in such cases is generally only from one to two per cent., which is accounted for by the circumstance, that even in bad cases of infection, only a small portion of a moth's eggs is usually contaminated with the germs of distemper.

METHOD OF PRODUCING CELLULAR GRAINE.

Little squares of clean cotton-cloth of the size shown in Fig. 30 are strung upon lengths of twine stretched across a cool, partially-darkened room. The number of cloths will of course depend on the quantity of cellular *graine* required

For one ounce of eggs from 110 to 120 cloths should be provided, and a similar ratio for larger expectations. After the moths have been uncoupled, a female is placed upon each little square of cloth, to which she will cling readily, and in a few minutes will begin to deposit her eggs, which also adhere by reason of the natural gum with which they are surrounded. In from thirty to forty hours the process will

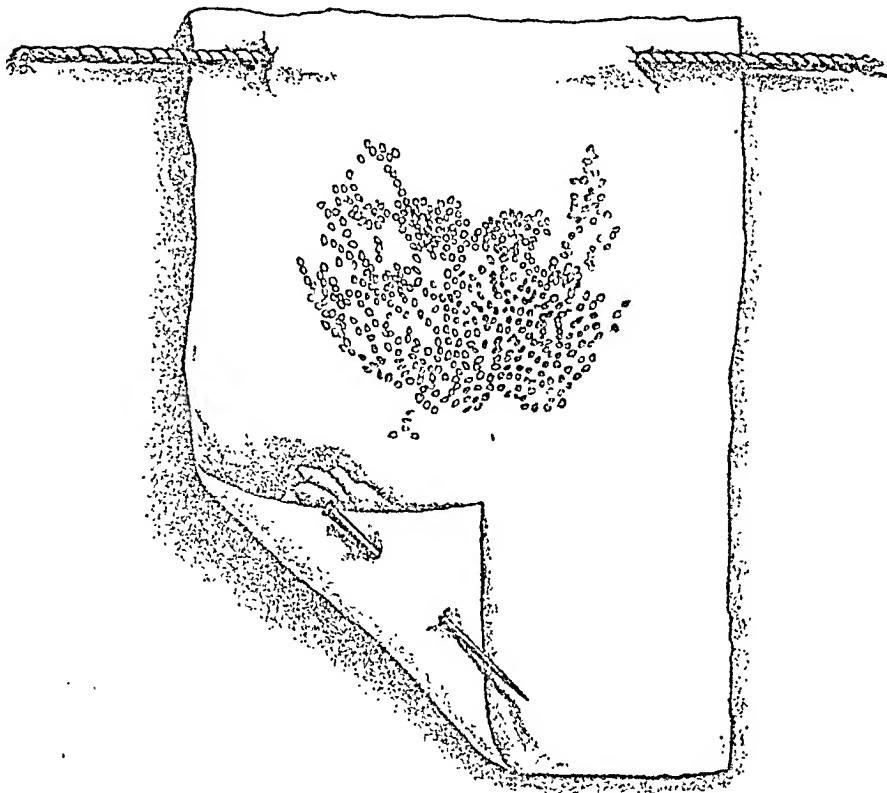


FIG. 30.—MOTH PINNED TO ITS EGG-CLOTH FOR FUTURE EXAMINATION.
PASTEUR'S CELLULAR SYSTEM.

be complete, when each moth is folded in the lower left corner of the little cloth, as depicted in the sketch, and is secured by being pinned thereto through its wings.

The only exception to this mode of treatment is in the case of the beautiful large Bagdad moth already referred to (Fig. 52), whose eggs, being unfurnished with gum, would drop down and be lost as fast as they were deposited. Accordingly, the females are placed in little muslin pockets

or bags to lay, these being suspended to strings stretched across the chamber in the same way as the others.

The day following that on which the *graine* has been deposited, the strings of cloths or bags are unhooked, the ends of each string tied together, and the whole carefully hung up in a dry, airy room with free atmospheric circulation; as it should never be forgotten that the *graine*, the worm, the cocoon, the chrysalis, and the moth can never be brought to perfection, and success in sericulture attained, without a constant supply of pure air. In this apartment the strings of cloths should remain until autumn or winter, and when the farmer is released from other duties he should separately examine each moth microscopically. As the object of the cellular system is to obtain absolutely faultless eggs, the discovery of any corpuscles on a disc should be held sufficient evidence to condemn the whole of the eggs on the cloth; accordingly they should be carefully washed off and destroyed, while the cloths, after proper cleansing in boiling water, may be reserved to do duty the following year. On the other hand, those cloths or pockets of eggs which have satisfactorily passed the ordeal of the microscopic examination in the persons of the moths which laid them, are treated with alcoholised water and scraped off for preservation, as already detailed earlier in the present chapter.

Such is the cellular system of M. Pasteur, which has already worked like a charm in eradicating or subduing silkworm disease wherever it has been practised. In the able and interesting work recently published by his son-in-law, and translated by Lady Claud Hamilton,* the following passage in this connection occurs:--

"This process of procuring sound eggs is now universally adopted. In Basses-Alpes, in Ardèche, in Gard, in the Drôme, and in other countries, may be met with everywhere,

* 'Louis Pasteur, his life and labours.' By his son-in-law. Longman & Co., London, 1885.

at the time of the cultivation, workshops where hundreds of women and young girls are occupied, with a remarkable division of labour under the strictest supervision of skilful overseers, in pounding the moths, in examining them microscopically, and in sorting and classifying the little cloths upon which the eggs are deposited."

The possibility of obtaining perfectly sound eggs having been thus proved, the next requirement was to secure such a degree of robust vigour in certain races that the future risks of contracting disease might be reduced to a minimum. This Mr. John Griffitt accomplishes as follows:—

MR. GRIFFITT'S INVIGORATING PRACTICE

May be termed a process of selection, or the survival only of the fittest. His words are: "No cocoon should be used for reproduction except those raised in the best known manner, where there have occurred few deaths in the last age of the worms, and in circumstances where the little creatures have exhibited no hesitation or delay in spinning. By the expression 'worms raised in the best known manner,' I mean, worms raised from *graine* in which there were no traces of the two dreaded diseases *pebrine* and *flacherie*; also, that every sanitary precaution had been observed during the several ages, so as to prevent accidental disease."

"I lay down three times as much *graine* to hatch as I wish to raise for actual reproduction, retaining only the worms of the *second and third day's issue*, in order that I may secure equality of age. The worms hatched later I rear separately for silk. I take care never to crowd my worms at any period of their growth, and I keep the nursery thoroughly ventilated. Feeding is attended to with the greatest regularity, the diet during the first three ages being the cut leaves of the wild, or ungrafted mulberry; and through the last two ages the leaves of the grafted tree in little clusters adhering to the branches. The latter

practice I find eminently healthful, as, by promoting the circulation of air, reducing the production of litter, and tending to keep the fast maturing worms well separated, the risk of *flacherie* is greatly reduced. Cleanliness is constantly observed and the refuse removed frequently, care being taken after each moult to detach those still unfinished and all the small specimens, from future companionship with the rest. By these precautions, at the end of the education, only the finest and most vigorous of the various races remain in the colony."

TWELVE RULES FOR SERICULTURISTS.

This chapter could scarcely be more appropriately closed than by the quotation of Mr. Griffitt's twelve rules which he constantly impresses on the minds of all his employes. They are as follows:—

- I. The two chief diseases of the silkworm, *pebrine* and *flacherie*, being highly contagious, it is of the first importance that the worms should never be crowded during their first three ages, so that any diseased ones appearing may not infect the others.
- II. Removing the litter from the frames should be done with deliberation and care, so that no dust may arise, because, in the event of there being diseased worms, the dust resting on any fresh mulberry leaves brought into the nursery communicates the malady.
- III. On removal, the litter should be carefully placed in a pit and immediately covered with earth, to prevent dust being carried by the wind into the mulberry plantation, or into a neighbour's nursery.
- IV. As soon as small, or sickly-looking, worms are detected on any frame, they should be imme-

diately removed by one or two specially intelligent girls detailed for this duty. It should never be forgotten that the neglected presence of a single diseased creature may cause the infection of many in health, and may even ruin a whole education.

- V. Large saucers of chloride of lime, diluted with water and frequently stirred, should be kept in each corner of the nursery chamber during the whole education, and special attention to this precaution and ventilation is required during the last two ages, when the worms are large, and their evacuations very copious.
- VI. When worms are raised for reproduction, the *graine* should be hatched as early as possible, in order that the worm may spin its cocoon eight or ten days sooner than those raised for silk, and other worms in the neighbourhood. The object of this precaution is to escape the miasma which may possibly be conveyed by the wind from diseased nurseries.
- VII. Educations for reproductive purposes should always be small, and the persons entrusted with the duty should be debarred having to attend to any other nursery.
- VIII. The educator should bear in mind that the only cure for hereditary *flacherie*, or indeed for preserving the worms from the accidental form of this disease, is to give them plenty of room, to keep them individually well apart, especially during their first ages ; and that there should be a constant renewal of the air in the apartment.
- IX. Avoid extremes of temperature when the worms are moulting.
- X. The person who picks a small or diseased worm off a frame with bare fingers, should wash the hands immediately afterwards.

- XI. Hatch one-third more *graine* than will be required in the last age, in order that laggards in moulting may be destroyed, and as a provision against any small, sickly, or diseased individuals that may appear during the education.
- XII. When pierced papers are used during the cleaning of the frames, they should be carefully wiped immediately afterwards with clean cloths, and exposed to the sun.

CHAPTER XII.

THREE TURKISH INSTITUTIONS.

It requires more than a residence of six weeks in Asia Minor—the length of time the writer had spent in that magnificent country when this chapter was originally written—ere the visitor can hope to say anything comprehensive of its modern capital, and principal seat of art and commerce, the great town of Smyrna. Time and opportunity are required to become familiar, and deal graphically with that strange agglomeration of squalid huts and noble palaces, crooked, badly-paved, ankle-twisting streets, myriad shops, reckless carriage-drivers, sun-shaded bazaars, scents, stench, dirty puddles side by side with white marble door-steps, and long strings of bell-announcing, donkey-led, stately, loaded, malevolent-looking camels, marching deliberately along with an air of slow, supercilious majesty, as if speed were no object, and all they surveyed their own. The attempt at such a description, therefore, will not be hazarded, and instead, the courteous reader is asked to be content at present with an introduction to three eminently meritorious Turkish institutions in and near the metropolis.

Sometimes it is said, and occasionally believed at home, that Turkey is not progressing along with the other civilised nations of the world; that, like the Chinese of other days, the Turks are incapable of improvement. Such disparaging language, like all exaggerated nonsense of the same stamp, will presently drop out of use, except by the recklessly untruthful, when it will only impose upon the wilfully ignorant. That Turkey would not be spoiled by

further regeneration is not to be denied, any more than that the municipal councils of many a great city at home would not suffer by the permanent withdrawal of some of their blatant, yet ignorant and vulgar, members. In both cases the remedy is the same—a rapid spread of education; and it is with the educational feature, which the Turkish Government of Smyrna is now and has for some years been endeavouring honestly to effect, that this chapter will deal.

Notwithstanding many revolting stories of atrocities which have been current from time to time about Turkish troops during periods of rebellion or war, it seems certain that the nation as a whole is far from cruel. Indeed, many travellers agree in testifying to the kindly manner in which the Turks treat their children, their servants, and their domestic animals. It is less known, however, that so unselfish is their hospitality, particularly to foreigners who can speak their difficult language, that such—not being Russians—may sometimes travel from one extremity of Asia Minor to the other without being obliged to spend the smallest coin upon either food or shelter. A people so kindly and well disposed in their ways towards the chance traveller or sportsman, are not likely to prove callous to the claims of the sick and helpless; accordingly, in Smyrna the visitor will find a very efficient and well-conducted native hospital.

The Konak is the name given to a pile of extensive public buildings, situated to the east of the harbour, and containing the chambers of the Governor-General, those of some of the high officers, and the departmental offices, except the Commercial Tribunal, which is elsewhere. To the right of these erections, but separated by a street, stands an immense barrack, capable of accommodating 10,000 men, which is interesting, on account of having been used during the Crimean war as a refuge and convalescent home for our wounded soldiers. A little further on, and well within the refreshing breeze from the Mediterranean, stands the hospital, in the midst of well-kept gardens gay with flowers,

richly perfumed with large, heavily-laden orange-trees, and rendered additionally cool and attractive by a splashing fountain. I went to visit the establishment, accompanied by two friends, and we were courteously received by the superintendent, Achmet Kiazim Effendi, a gentle-looking Turk, who, after we had partaken of coffee in a handsome drawing-room, took us over the buildings. As we were leaving the reception-room to accompany our guide, I observed a couple of framed and glazed Turkish inscriptions hanging on the wall, which, on being translated, proved to be prayers, or rather aphorisms, quoted from the Koran, as follows: "He who harms the poor will be punished by God;" the other, "He who does good to the poor will be rewarded by God;" whilst on the opposite wall hung the comfortable words, "God in creating man provided everything suitable for his happiness. Let man be just, and all will be his." With those encouraging maxims to reflect upon, we followed the superintendent up and down flights of stairs and along spacious corridors, noting the cleanliness which everywhere prevailed. There are at present 125 cots in position for men, and 25 for women, with a sufficient stock of iron beds stored away ready for immediate erection. Outdoor patients are also gratuitously treated at certain hours, of whom some fifty are usually on the list; and the importance of the hospital will be recognised when it is mentioned that during the past two years more than 5000 persons have been successfully treated within its walls, who, without such medical aid, or relief from the hospitals of other nationalities in Smyrna, would inevitably have perished. As in the Greek hospital, previously described, all diseases, kindreds, and tongues are admitted without papers or recommendations of any kind, the only two exceptions being persons afflicted with venereal complaints and leprosy; but preparations are being made in separate establishments for their treatment. A walk round the wards conveyed the impression of the perfect cleanliness and comfort of the inmates, and the care with which they are attended. Even in a room full of

ruffians—wounded, scowling prisoners, whose maimed bodies were perforated in various directions with dagger, bayonet, sword, pistol and gunshot gashes,—the purity of the atmosphere, except a slight smell here and there of chloride of lime and carbolic acid, was remarkable. Two doctors and two assistants are in constant attendance, who enjoy also the benefit of the advice of their colleagues in the medical profession during their weekly meetings at the hospital. In a word, to my unprofessional, although not altogether unobservant eye, the whole of the arrangements—the neatness, quietude, regularity and military precision which pervaded the wards; the cold glitter of the cruel, yet necessary instruments reposing until wanted in their crimson velvet nests behind doors of glass; the speckless appearance of the walls, ceilings and floors; and the ample dimensions of the savoury kitchen and store-rooms, all disarmed criticism, because there was nothing with which to find fault. It would be hard, however, to discover in this world any merely human institution without some flaw. In this fine establishment the weak point does not lie in any imperfection in the arrangements, or deficiency in the manner in which these are carried out, but rather in the loss sustained by the rising generation of the Turkish Levant, and Asia Minor generally, in consequence of there being as yet no medical school attached to it. There is a wealth of teaching facilities and bedside experience running to waste which ought not to continue, but should be immediately pressed into the service of Turkish medical education.

The benefits of the hospital being given gratuitously, the cost per annum—about £4000—is mainly provided by means of a small tax upon real estate, the rest being contributed by private donors and subscribers. Among the last is His Majesty the Sultan, who allows 350 piastres per month from his private purse, and a sum of 2950 piastres per month is unselfishly contributed by the various government servants of the vilayet.

Our inspection over. we were taken through the beauti-

fully kept gardens, full of large orange-trees covered with ripe fruit: and with many a shaded nook where the weary convalescent could sit and enjoy the lively movement of ships coming and going the entire day in and out of the busy harbour. With balmy zephyrs continually being wafted in from the blue Mediterranean; the bright, unclouded, yet far from fervent sun overhead; the mellowed notes of the military bands from the not far distant barracks occasionally saluting the ears of the patients, and the magnificent ripe fruit hanging everywhere within reach for the assuagement of their thirst, I fancied that those Turkish and other sufferers who were now recovering from their complaints, had they been acquainted with our western literature, might have said with the poet:

“I thought that if peace could be found in this world,
A thankful heart might look for it here.”

Bidding adieu to the patients, the musical fountain, and the fragrant orange groves, we were requested to return to the reception-room, where cups of coffee and cakes were again presented, and after a further interval were each given a handsome bouquet of yellow tea-roses on our departure.

At the old quarantine station, a few miles distant by tram-car, and close to the Bay of Smyrna, stands another noble monument to Turkish philanthropy and progress—the “Industrial School for Orphan Boys,” sometimes called “The Polytechnic.” It is under the personal care and constant superintendence of Yousuf Zia Effendi, a man with the word “benevolence” depicted in every feature of his face as plainly as if stamped there—who, as might be expected, takes the liveliest interest in his duties and in the welfare of the little waifs over whose instruction he presides. Although the school has only been in operation six years, it has already done good work in rescuing from the gutter many a poor little mite whose goal in former days would have been the gulf of crime. After the inevitable coffee and cigarettes, we were conducted over the school, where there

are one hundred and two boys and accommodation for about fifty more. The class-rooms, dormitories, kitchen, and corridors were all visited with approval, as also the warehouse containing the fruits of the boys' industry, when we were taken to see the little lads actually at work. Nineteen small shoemakers made a really effective display of products equally suitable for young and old, rich or poor. The boys were busy on boots of various shapes, colours and materials, from the little red dumpy article for toddling infancy to the splendid equestrian adjuncts of the gorgeous pasha. There was strength and neatness, brilliance and sobriety, in the shining rows of handsomely-sewed leather work, which seemed to appeal with equal force to peasant as well as peer to come, buy, and wear. Meanwhile the diminutive cutters-out performed marvellous feats of dexterity in sweeping recklessly round difficult leathern corners with their sharp curved knives; the hand-sowers awled and tugged with vigour at their waxed threads; many small hammers remorselessly thumped in the pegs of wood, brass, or steel into soles of unbending rigidity, whilst half a dozen sewing-machines clicked merrily in chorus.

The cabinet-making, turnery, and carpentry department had twenty-two muscular little men, each with his saw, chisel, or mallet in full operation, and their work fell in no sense behind the others in interest. Their products consisted of many admirable specimens of light furniture, small tables, commodes, cupboards, corner presses, fancy boxes, egg-cups of olive-wood, garden chairs, and other useful and ornamental articles. The tools and benches seemed all that could be desired, the workshops were brilliantly lighted, roomy, and airy, and the bright-looking little Turks in their tiny red caps wore an air of happiness and evident devotion to their pleasant labours, which must have been most gratifying to their indefatigable preceptor.

Without meaning to imply that there existed any violent contrast between the workers in leather and wood and those of the next department visited, it must still be averred

that a decided air of sedateness and gravity pervaded the domain of the bookbinders, as was indeed befitting the haunt of a learned profession. The numbers, to be sure, were limited—only six; but their duties are onerous, as a share of the Government work regularly goes their way. That in progress was an official record of events—a kind of calendar, with a well-executed large map of the vilayet of Smyrna, drawn by Yousuf Zia Effendi himself, a copy of which he very kindly presented on my departure.

The stalwart village smith, with arms and fists of the largest development, perspiring at the roaring forge, has somehow down through the centuries monopolised the human idea of what a worker in iron ought to be like; consequently, it seemed a kind of burlesque to call such liliputian beings as those next seen, the descendants of the mighty Tubal Cain. Yet there they were, these little smiters of the anvil, doing work with a precision and dexterity which that historic smith would have envied but could not have produced. Of the twenty-two *wee* engineers in this workshop, some were at the forge, some at the turning lathes, others were using the file and chisel, whilst a deeply-absorbed group surrounded a drilling machine, driven by a stalwart negro, piercing the ironwork of garden chairs.

Probably, however, the liveliest scene of all was a roomful of diminutive tailors. They were shaping, stitching, and using the sewing-machine, upon the articles of dress, themselves, and their fellows in the other workshops, would sooner or later wear, with a degree of activity and enthusiasm usually associated with play rather than work. The sounds heard were not so deafening as those produced in the smithy, still, the continual whirr and click of the mechanical needles rendered conversation difficult, showing equally the good training of the nineteen boys at work, and the substantial quality of the tools they used.

Only one more spectacle remained—the inside of the music-room. To the enquiring mind such a place told a story peculiarly its own. There were nineteen little men in

this apartment, some wielding trumpets almost as big and heavy as themselves, and all standing motionless beside their manuscripts, ready to commence as we entered. At a signal the performance began, and it was surprising to note how well they kept together, and what a crash of musical sound they at times emitted. Even some wild camel-drivers, with their animals, passing outside were constrained to pause and look in at the open windows. Like the "wedding guest" held by the "glittering eye" of the "Ancient Mariner," they "could not choose but hear." These dusky wanderers are not as a rule emotional, so they are not usually surprised at anything; or, if they happen to be a little astonished at an unexpected occurrence, generally succeed in concealing their amazement. But there, with widely-stretched eyes they peered in at those open windows, through which a gentle breeze played from the Bay; and when they saw the almost microscopic atoms of humanity who were producing such a volume of sound, their hushed ejaculations of "Marsh Allah" (praise be to God) showed what they felt and how they were moved.

Immediately adjoining this invaluable school of industry and sweet sounds, are the magnificent new buildings, not then quite completed, intended for the housing of another noble institution, the "School of Commerce and Agriculture," which owes its origin to the late amiable Governor-General, Hadji Nachid Pasha, and to the enthusiasm for national progress of Mehemed Noury Bey, the former Inspector of Agriculture for the Province of Smyrna, who is intended to be the Director. It is one of the finest Government buildings in or near the town, and has already cost more than £20,000. When finished and opened it will doubtless prove an important factor in the quickly-improving teaching apparatus of Turkey. Its advantages to students will be manifold, as the buildings have been specially contrived for the purpose intended. The class-rooms, halls, laboratory, library, and corridors are lofty, airy, and well ventilated; the situation on the margin of the Mediterranean

is beautiful and healthy, while a short tramway line connects the college with the entire length of Smyrna.

From the foregoing brief account of only three Turkish institutions, some idea may be gathered of what many others have become, or are daily becoming, under the influence of modern ideas. It may be true that the old Conservative party still exercises a retarding influence at Constantinople, just as the antiquated Tory fossils of London are perpetually blundering up against every proposed amelioration of the masses or other improvements at home. But as this is the age of enlightenment and progress, the old-fashioned and doubtless perfectly honest Turk of the Bosphorus, equally with the decayed and shrivelled Tory of the Thames, must quickly give place to men of advancement and action.

CHAPTER XIII.

DISEASES OF THE SILKWORM.

It seems to be the price demanded and paid as an equivalent of human progress, that wherever a high state of civilisation is attained, there, correspondingly troublesome or fatal diseases reign. On the other hand, if it be amidst the haunts of science that we see the maladies of men and the lower animals most prominently developed, it is there alone that such diseases receive their check, antidote, or cure. The murrain which seized, dominated, and almost destroyed, during more than thirty years, the silkworms of Europe and Asia Minor, is an illustration in point. So long as the silk-rearing industry remained exclusively among unscientific nations like the Persians, Chinese, Venetians, or Genòese, the various silkworm diseases, recently so well known and dreaded in every important silk-producing country of the world, were either so undeveloped as to be comparatively harmless, or were not in existence. Nevertheless, not many years after sericulture had become a thoroughly established calling in the midst of the most scientific nation of the period—France—all the terrible scourges of silkworm life appeared, which at first spread slowly and mildly, then gradually gained strength and malignity, until ultimately they all but ruined the silk-farming enterprise. There were other elements, doubtless, which tended to hasten the disaster, such as war, internal convulsions, and pestilence. With these factors it is unnecessary to meddle, as they were subsidiary rather than important accompaniments. It is sufficient to note that the management of silkworms by an

eminently civilised, clever, clear-headed, expert, and skilful people, seemed for a time to have become infinitely worse in its results than all the blind blundering of uneducated Asiatics for more than a thousand years.

The culture of the mulberry, and rearing of silkworms, is said, by some authors, to have been begun in France during the thirteenth century, in an amateur way, in Languedoc, Provence, and the Comtat d'Avignon; but the experiment does not appear to have made much progress, as other writers mention as a circumstance worth recording, that in 1480 some noblemen were only beginning to study the habits of the silkworm at Dauphiny that year, with a view, probably, to promoting a silk industry on their own estates. The likelihood therefore is, that the correct date at which to fix the commencement of silk-farming in France, on a commercial scale, should be the year 1521, during which Milanese artizans were invited, and went to Nismes, capital of the department of Gard, to teach the French peasantry of that fertile plain how to manage the white mulberry-tree, to take care of silkworms, and to harvest their silk. The infant industry thus initiated was enthusiastically encouraged by King Henry Quatre; and of such good quality were the mulberries, and so carefully tended then and since, that the first bush planted on that occasion is said still to survive, and may be seen surrounded by its adult scions as old-looking as the parent.

Louis XIV. also encouraged silk rearing, but it is to the present century that the industry owes at once its rapid rise, its melancholy collapse, and its recent hope of a general revival. During the reign of the "Grand Monarque" the average annual weight of cocoons produced in France was only 100,000 kilogrammes, equal to 220,000 lb. avoirdupois. In 1788 the total harvest had increased to six million kilos. (13,200,000 lb.), when the Revolution intervened and pulled down the annual yield to one-half. One of the very few good things Napoleon Bonaparte did for France was to foster sericulture, so that under his encouragement the crop once more began to

increase, and after the European peace of 1815 rapid progress up to the end of 1853 was attained. Meanwhile the yield of silk in other countries was also marked, and continued in a state of prosperity longer, as the diseases, which began in France, took fully five years to spread over Europe, Asia Minor, and into the further East. The accurate appreciation of the state of matters which ensued, is so important to any reader who would grasp the full significance of the sericultural disaster which now began to prove formidable, that the subjoined tabulated statement, compiled by the writer in 1882 from official and other documents, is quoted in full from the 'Journal of the Society of Arts.'*

Imports into London of China, Bengal, Persian, Brutia, and Italian silk.		Results of the Silk Harvests in France.	
Year.	Bales.	Year.	Kilos. of Cocoons.
1830 . . .	22,741	1821 . . .	10,000,000
1840 . . .	23,051	1831 . . .	14,000,000
1846 . . .	30,658	1841 . . .	17,000,000
1852 . . .	46,985	1846 . . .	21,000,000
1853 . . .	54,489	1853 . . .	26,000,000
1856 . . .	75,166		
1857 . . .	112,757		
1859 . . .	93,154	At this period the silkworm diseases seem to have got the upper hand, so that the harvests dwindled as follows :—	
1863 . . .	80,802		
1871 . . .	72,062		
1872 . . .	63,832		
1873 . . .	53,359		
1874 . . .	52,881	1854 . . .	21,500,000
1875 . . .	40,310	1855 . . .	19,800,000
1876 . . .	53,930	1856 . . .	7,500,000
1877 . . .	39,590	1863 . . .	6,500,000
1878 . . .	37,939	1864 . . .	6,000,000
1879 . . .	35,426	1865 . . .	4,000,000
1880 . . .	33,772	1879 . . .	3,500,000
1881 . . .	26,223		

* *Vide* paper on "The Physical and Social Capabilities of New Zealand for Tea and Silk Culture," read before the Foreign and Colonial Section of the "Society of Arts," London, on Tuesday, 31st January, 1882, p. 288, by W. Cochran.

It will be seen from this table that the culminating point of prosperity in France was the year 1853, or about six years after the various silkworm diseases had begun to prove troublesome; and for the other silk-producing countries named, 1857. After those dates the silk harvests all over the world began steadily and rapidly year by year to decrease, so that, latterly, a simple arithmetical effort would have put the student in possession of a period corresponding fairly well with the year when, on the death of the last worm, the industry would have utterly perished.

To be even more explicit, the reader is informed that during the year 1853 the average value per pound of cocoons in France was about five francs, so that the harvest of that magnificent season was worth one hundred and thirty millions of francs, or, at $9\frac{1}{2}d.$ per franc, £5,145,833; and had a similar rate of progress been kept up all through the Second Empire and Republic, the present silk harvest might not unlikely have reached a value of one thousand millions of francs, or £39,583,333 sterling.

It is abundantly clear, therefore, that if France made mistakes she was destined to pay terribly for them, in company with all the other silk-rearing countries of Europe and Asia. She was the first victim, as it was in her nurseries the diseases had taken form and shape; so, years afterwards, as was most fitting, it was one of her gallant sons that showed his countrymen how to stamp them out. In the meantime the maladies were spreading in every direction, and the great year for the French silk-farmers, 1853, proved the beginning of mourning for those of Lombardy, as *pebrine* had taken possession of the farms there, which three years later were as completely infected as those of France.

Now commenced one of the most extraordinary egg-hunts the world ever saw. The crisis was of the gravest kind, for a great industry belonging to many nations was threatened with extinction. France could no longer look for help to Spain and Italy, for both speedily became as

dangerous centres of infection as herself; consequently, adventurous young men from all three countries scattered themselves over the face of the earth, tried every island in the Greek Archipelago, hawked all through the Balkan Peninsula, took swift dromedaries from the Bosphorus to Broussa, and thence rushed to every corner of Asia Minor, Syria, Egypt, China, and Japan. Every likely spot was ransacked at enormous cost, for if the stake was great, success meant millions. It would have been truly heartrending had all these splendid efforts been put forth in vain. They were each successful for a time; the eggs so acquired tided over the farmers, who could pay for them, for a season; but in most cases the progeny proved inferior, became in turn infected, and the egg-hunt had to be recommenced and extended to such remote places as Corea, Bokara, Manchuria, Turkestan, Georgia, some of the Pacific islands, and Chili. Fortunately for these globe-trotters, the merchandise of which they went in search is remarkable for its portability, as from forty to fifty thousand eggs are required to weigh one ounce, and that quantity may be easily stowed away without trouble in one's waistcoat pocket; but unfortunately for the trade it came to an end in consequence of disease appearing sooner or later everywhere in the East, except in Japan. By the year 1864 no corner of Europe was exempt, and Japanese eggs alone remained healthy. "Agricultural societies, governments, all the world was preoccupied with the scourge and its invading march," we are told by Lady Claud Hamilton in her most interesting translation of Pasteur's book already referred to: "It was said that something like cholera had attacked the worms." After every imaginable nostrum had been tried without success, a wail of despair went up to the Government from a body of 3600 mayors, municipal councillors, and capitalists connected with the various silk-producing departments of France. A commission was appointed, with M. Dumas as reporter; and it was at this time that that gentleman

conceived the happy idea of inlisting Pasteur in the inquiry. On the 6th June, 1865, this eminent physiologist and chemist, taking the bull by the horns, as it were, visited Alais, where the silkworm plague was doing its worst. Twenty days afterwards he had found a clew, which, for five long years he never relinquished, even in the face of the bitterest criticism and animosity, until he had probed the maladies to their most hidden sources. When Pasteur paid his first visit, the silk-farmers attributed all their troubles to the disease *pebrine*, and to that malady alone, but he soon discovered and informed them that there were others present. In 1866 he had laid bare one of the plagues, the corpusculous malady; the following year he was able to fully expose and explain another, known as *flacherie*. After numerous experiments and great research he came to the conclusion that these were the real plagues he was called upon to fight: *pebrine* was the most prevalent, but *flacherie* was also more or less everywhere; he accordingly fought them with his microscope, and conquered.

The question may now with perfect propriety be asked: "What really are *pebrine* and *flacherie*?" Fortunately, after the enlightenment of M. Pasteur's five years' patient researches, the replies are not difficult, and now follow as far as possible in the language of Mr. John Griffitt of Bournabat, one of Pasteur's most enthusiastic disciples.

PEBRINE. (Fig. 31.)

The name *pebrine* is derived from the French provincial word *pebre*, pepper—and is descriptive of the small, dark, round spots characteristic of the skin of the worm, labouring under its influence.

Pebrine is produced by parasites in the worm, and is to be dreaded, because, in addition to its being hereditary, it is highly contagious; but by the use of a microscope magnifying from four hundred to five hundred diameters, the corpuscles of the disease are easily seen.

There are two distinct forms of the corpuscle—one brilliant, round or oval in shape, with sharply-defined

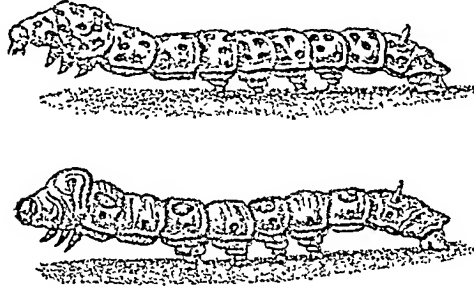


FIG. 31.—PEBRINE.

outlines, and many equal in size. These have reached their full development (Fig. 32). The other is pyriform or oval, of a pale colour, with a dimly-traced outline

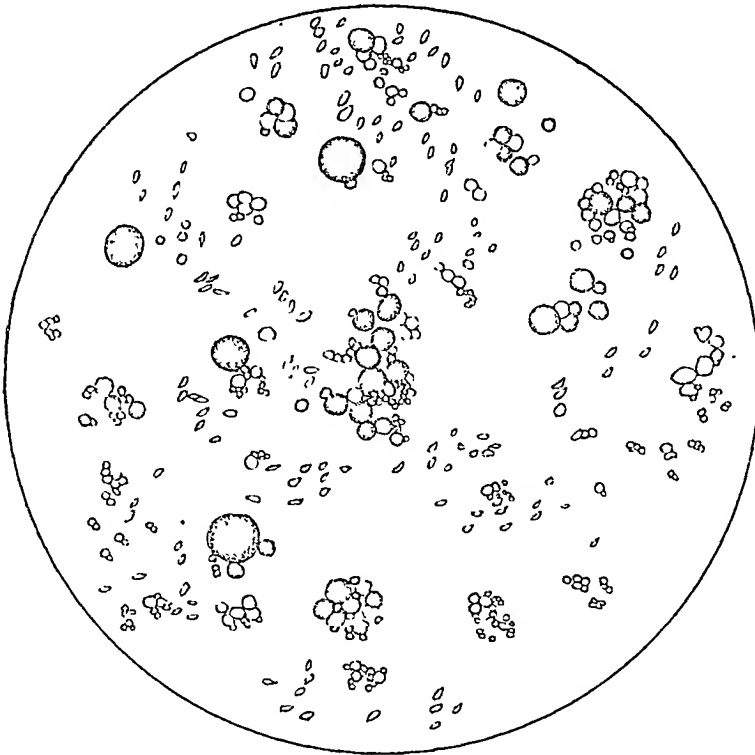


FIG. 32.—HIGHLY CORPUSCULOUS GRAINE.

(Fig. 33). Such are young corpuscles, but requiring only a short time to develop into the brilliant, well-

marked form. The action of the atmosphere upon these organisms destroys their virus or their power of communicating disease; but it should be remembered that the dust of a nursery, the worms in which had died of *pebrine* the previous year, falling on mulberry leaves with which a succeeding race are fed, will produce *flacherie*. Hence the necessity, already alluded to in these pages, of a

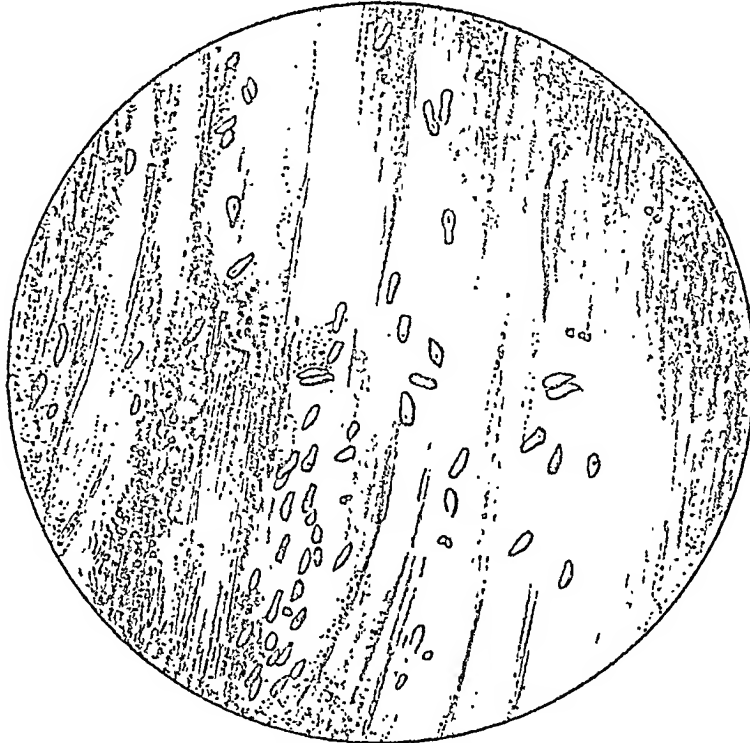


FIG. 33.—YOUNG CORPUSCLES ABOUT TO DEVELOP INTO BRILLIANT OVAL CORPUSCLES.

thorough cleansing of every corner of the *magnanerie* before a fresh incubation is attempted.

The symptoms of *pebrine* are easily recognised. The worms become very irregular in size, eat little, and acquire the characteristic spotty appearance of Fig. 31. The spots are seen first upon the head, but quickly spread all over the grub, while the moths show dark markings on the wings, and a velvety appearance from the middle to the tail end of the body. In a former part of this work

the necessity of taking every precaution to separate immediately all healthy worms from those which happen to be contaminated was shown. Such precautions were not founded upon mere hearsay or unsupported tradition, but were the outcome of the following experiments, conducted season after season for many years by Mr. Griffitt at Bournabat, near Smyrna:—

Experiments, first and second ages.

- I. On many separate occasions he infected hundreds of silkworms during their first and second ages, by placing ten per cent. of diseased worms among the healthy. The malady spread over the entire colony, and not a single cocoon was produced.
- II. He frequently, in the course of different seasons, introduced contamination among the worms of an absolutely healthy colony, by sprinkling a little fresh excrement, taken from diseased individuals, among the robust. Precisely the same result followed.
- III. Feeding a colony of healthy worms *only once* upon mulberry leaves which had been touched here and there with fluid obtained on bruising a corpusculous worm in a mortar, produced *pebrine*, and no cocoons followed.

These three experiments, repeated hundreds of times during many years, may be held to prove:

- I. That the contagion of *pebrine* spreads by contact;
- II. By inoculation, communicated through the claws of the worms creeping over each other after having been defiled among corpusculous excrement;
- III. By eating and digesting mulberry leaves contaminated by the juices of corpusculous worms; and
- IV. That worms so infected during the first two ages never form cocoons.

Experiments, third age.

The same round of experiments were tried frequently during the third age of silkworms, with the result that infection proved less disastrous. Many worms succeeded in spinning imperfect cocoons, but when cut open the chrysalides were always found to be a mass of corpuscles; when allowed full time, the moths hardly ever had sufficient energy to issue from their cocoons; and in the few instances in which they emerged they were found worthless for reproduction.

Experiment, last age.

When worms are infected during their final age, being then more seasoned and their powers of digestion thoroughly active, they suffer less, but do not escape uninjured. Should the contamination reach them immediately after their fourth moult or change of skin, they invariably spin cocoons, the beauty of which are apt to deceive the farmer into the belief that the little creatures inside are free from disease. Examine the chrysalis however with the microscope, or any of the moths which issue, and it will be found that many of them are very corpusculous. This experiment clearly shows that while worms infected during their last age may be depended on to produce good mercantile cocoons for silk-reeling purposes, still, as many are found to be corpusculous, they are worthless for reproduction, and ought never to be retained for that purpose.

Precautions as to absolute cleanliness in every department of the nursery, as well as the avoidance of dust, particularly where disease in any form is or has been recently present, have also been brought before the reader. These precautions arose out of the following

Dust Experiment.

Mr. Griffitt collected some dust from various nurseries in which the worms had all died of *pebrine* the previous year.

After sifting, and mixing a few particles with distilled water, a microscopical examination revealed hundreds of corpuscles upon each disc. Some of the same dust was then sifted over mulberry leaves, and given to silkworms in different ages, when after two or three days the mortality in every instance was found to be very great. Yet, strange to say, when the deceased worms were in turn examined no corpuscles were discovered, and it was evident that they had died of *flacherie*.

With the view of making all such experiments as the above convincing, and placing their manipulation beyond the reach of accident or carelessness, they were performed in absolutely clean, white-washed rooms, without drapery of any kind, by the investigator himself; the worms used were taken from a number in perfect health, the remainder being kept for comparison; and in every instance the members of the little colony, if originally uncontaminated, completed their full periods of eating, spun good cocoons, from which moths issued entirely free from corpuscles.

It has already been observed that the name *pebrine* has been given to the corpusculous malady on account of the appearance the body of the afflicted worm presents. Now, as nearly all the worms in a nursery show marks upon their bodies, some discrimination is required ere the fiat goes forth that they are diseased. The feet of the little creature are provided with hooks to enable it to anchor itself securely to the leaf it may be devouring, and with these adjuncts it can cling with wonderful tenacity even to one's bare hand. In crawling over one another on the frames, in search of attractive food, or during the last age when about to mount the brushes, they slightly wound one another, producing elongated scars, which should not be mistaken for the spots of *pebrine*. But as a pictorial illustration of what is meant is of more practical value than many sentences of description, the reader is referred to the subjoined sketch (Fig. 34), where the segment of a corpusculous worm, magnified six diameters,

is shown with both spots and wounds, the latter characteristic of having been inflicted with claws.

It will be evident from what has been said regarding the disease *pebrine*, taking into account the circumstances that it is both hereditary and contagious, that it is difficult to deal with ; in the present state of our knowledge, impossible to cure, and only to be got rid of by the promptest measures of extermination whenever seen. This much, however, we are certain of, on the authority of M. Pasteur, that perfectly healthy moths, in whose bodies no corpuscles can be detected, will yield perfectly healthy eggs, so that, although we cannot tell exactly what the corpuscle is, where it comes from, or how it in the first place acts, we know it is a parasite, and that

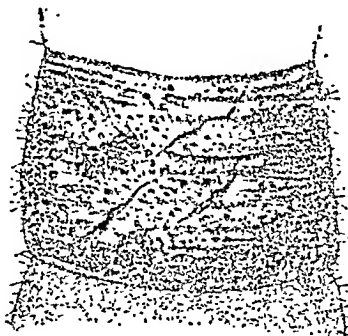


FIG. 34.—SEGMENT OF A CORPUSCULOUS WORM.
(Magnified six diameters, showing *pebrine* spots and skin wounds.)

the microscope reveals its presence. The method of detection is simple and is as follows :—Whenever the moths begin to issue from their cocoons, a few are separately pounded in a mortar, and a note taken of the number of corpuscles seen on each field of the microscope. In order to obtain a just average, not less than fifty moths should be thus examined, and it will be understood that in every case of crushing for examination the wings and eggs should be removed. If over ten per cent. of the insects are found to be corpusculous, the entire lot of cocoons from which these were taken are worthless for *graine* : they should be stifled and disposed of for silk. Should less than ten per cent. of disease be detected, the crop may be considered fit for commercial *graine*, but

should on no account be kept for reproduction. Indeed absolute freedom from corpuscles should alone entitle any eggs to be preserved ; and probably within the next few years, when the advantage of such a course has been experienced in silk-producing countries, and the knowledge and use of the microscope become more widely spread than is the case at present, no eggs produced by *pebrine*-infected moths will escape destruction.

It has been said that *pebrine* is both infectious and hereditary, to which may be added a memorandum of the belief, prevalent both in China and on the continent of Europe, that the silkworm is prone to catch disease from a human being. So particular are the silk-farmers in the former country at the period of hatching, that no females, except those in perfect health, are allowed to assist inside in any way in an establishment of any pretensions. Persons in mourning are forbidden to enter a chamber where silkworms are feeding, unless seven weeks have elapsed since the death of the person they grieve for ; the attendants are prohibited during the period of their duties to use meats fried in oil, or have about their persons any scent agreeable, aromatic, or otherwise ; and on no pretence whatsoever is an *enceinte* woman permitted to approach the nursery. The nurseries themselves are kept scrupulously clean, and no fermenting material, either animal or vegetable, is allowed to accumulate inside or near ; means of washing for the attendants are everywhere at hand ; and no native thinks of crossing the threshold without the superstitious rite of either sprinkling himself or being sprinkled with a small bunch of mulberry leaves dipped in water.

In France, also, precautions are observed, as will be seen from the following anecdote condensed from the narration of an eye-witness* :—"I well remember several years ago setting out with a party of friends from the quaint old city of Arles, with its forlorn look of better days, its sad wealth

* *Vide* article, "Silkspinners"—a chapter on *pebrine* and its victims, in 'London Society' for December, 1881.

of ruined palaces, on my first visit to a *magnanerie*, or silkworm rearing-house. . . . The approach of our modest victoria caused quite a sensation. The men and women picking leaves quitted their task to look at the strangers; and the black-eyed, brown-faced, tightly-swathed babies, hanging in animated clusters from the branches of a spreading tree close by the road, stared in solemn wonder and dumb amazement at the unwonted sight." Presently the manager of the silk-farm made his appearance. "He expressed himself charmed to have the opportunity of showing us over the establishment, and invited us to enter. Just as we were about to do so, he noticed, evidently for the first time, that one lady of our party was in a delicate state of health. Stopping us at once, he exclaimed, 'I am desolated to disarrange you, but it is impossible this lady should enter.' At our astonished requests for his reason the little man explained, with paroxysms of excuses and apologies, that silkworms were seriously affected by the proximity of any person in ill-health, and that were the lady to enter the *magnanerie* the result would probably be most disastrous to his 'educations.' . . . Finding the manager inexorable, and as the innocent cause of the fuss urged that she really did not care about seeing the place, we finally left her quietly seated in the carriage, and entered the *magnanerie* in the wake of our guide. . . . Here, surrounded by his charges, the manager fully explained his reluctance to admit our friend. It appears he was once employed at the experimental rearing-house of the Commission on Silks at Lyons. . . . All was going well in the establishment on one occasion, when a girl suddenly fell ill of fever—so ill that a bed was made for her in a room in which some silkworms were being 'educated.' Next morning those who had care of the room were disagreeably surprised to find that two-thirds of the worms were diseased, whilst in the other rooms no sign of such a thing was discernable." This circumstance, which after all may have been but an accidental coincidence, had convinced the

manager that the near approach of any person in ill-health is most prejudicial to the worms.

It need only be said, in concluding these remarks on this corpusculous disease, that, although there is no known cure for it, the farmer can protect himself against its approach by taking due precautions: the first of which is to learn the use of the microscope; the next, to hatch no eggs except those obtained from healthy moths, to give his worms plenty of room, abundance of ventilation, to keep them scrupulously clean, and to make sure that his mulberry leaves have not been contaminated by dust from neighbouring infected nurseries.

FLACHERIE. (FIG. 35.)

It was in the year 1867 that Pasteur, after numerous experiments, was enabled to drag forth before the searching eye of science the secret of the other great plague, that of *flacherie*, which, along with *pebrine*, had so long been paralyzing every effort of the French sericulturists. During the early months of that year the great physiologist had been hatching and rearing silkworms by artificial heat, and feeding them on mulberry leaves brought forward in a green-house. In the course of these experiments he observed that out of sixteen distinct colonies, reared from the eggs of non-corpusculous moths, fifteen broods succeeded perfectly, while the sixteenth was almost entirely cut off between their fourth moult and the period of climbing to spin. Up to this point the worms evinced good health, like the others, and exhibited quite as robust an appearance, when they suddenly died. During a morning, from ten to twenty worms out of one hundred were picked up dead; the same next day, and so on until hardly any of the batch remained alive. The dead worms

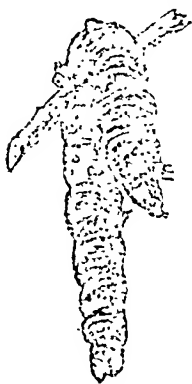


FIG. 35.—WORM
DIED OF FLACHERIE.

turned black, and became putrid with great rapidity, often within twenty-four hours; and were generally soft and flabby. This disease could not be a case of *pebrine*; none of the symptoms were present; not even a single corpuscle, was the testimony of the microscope. What could be the cause of this sudden and fatal blight? (Fig. 35). In order to get an answer, Pasteur changed the direction of his inquiry from the worm to its food, and there he found a reply.

It is well known, that wherever silkworms are hatched and reared, the temperature is fairly high, and is provocative of fermentation in vegetable substances in a damp state. He accordingly crushed some mulberry leaves, along with a little distilled water, in a mortar, under suitable precautionary measures, and left the result alone for twenty-four hours. A microscopic examination then revealed numerous organisms—some at rest in the shape of rods, attached by the ends to one another like strings of bugles; and others moving about like the vibrios found in most organic fluids undergoing decomposition (Fig. 36). The next step in the investigation was to cut open the intestinal canal of a series of worms in perfect health, taken in the act of eating, also during a moult; but not the faintest trace of living microscopic organisms could be detected. After repeated experiments, all ending in the same manner, it became evident that the digestive power of a robust, healthy silkworm is so overmastering that everything it eats and swallows is assimilated like its legitimate food, the refuse passing harmlessly away. On the other hand, it became plain that any cause arising to impair or intermit this powerful process of absorption gave a chance of life to the numerous animalcules swallowed with the food, which, multiplying immediately, either caused the death of the worm at once, or weakened it for spinning, and rendered it unfit for reproduction. Lady Claud Hamilton, in the clever translation already referred to, says—"Summing up in a kind of aphorism a

series of observations, Pasteur observes, 'Every *ver flat* is one which digests badly, and conversely every worm which digests badly is doomed to perish of *flacherie*, or to furnish a chrysalis and a moth, the life of which, through the injury produced by organised ferments, is not normally perfected.' "

So much for the great physiologist's discoveries and remarks; let the reader now turn for a few minutes to Mr. Griffitt's practical everyday observations:—This gentleman's manuscripts state that the silkworm disease known as *flacherie* has been so named after the French provincial word *flat* (flaccid), on account of the flabby appearance the worms present when attacked by it. The disease is hereditary in the sense that worms hatched from eggs obtained from a partially stricken moth are more liable to the malady on account of possessing less power of resistance, not that the intestinal parasites are transmitted through the eggs to future generations. It is also accidental and contagious, when proper sanitary steps have not been taken during the education of the worms. To the producer of *graine* it is not sufficient guarantee that the worms have all along up to their last age seemed free from disease, to relax his constant watchfulness; he must now be specially on the alert to note the least abnormal symptom. Should there have occurred but few deaths among many thousands of worms at that period, and should the healthy display no hesitation when the time comes to march forward, like a determined little army, to storm the brushes, and immediately commence to spin their cocoons on their arrival there, the educator may feel certain, without any appeal to his microscope, that no hereditary *flacherie* is present, and use the resulting cocoons fearlessly for his next season's incubation. Should he, on the other hand, detect in the worms an indisposition to mount, and an inclination to lounge for days almost immovable at the bottom of the pine branches, he may give up all hope of obtaining robust eggs from their moths. He could get

eggs of course, but with the almost absolute certainty that their produce would prove an entire failure the following season. Silk he will obtain, and probably a fair crop, but the judicious sericulturist will stifle every cocoon, and not allow a single moth under such circumstances to perpetuate its species.

Following up M. Pasteur's experiments, Mr. Griffitt infected worms with *flacherie*, as he had already done with *pebrine*, as follows :—

Experiments.

- I. He placed among a known number of perfectly healthy worms ten per cent. of worms hatched from *graine* obtained the previous season from moths smitten with *flacherie*.
- II. He fed an ascertained number of robust and diseaseless worms on mulberry leaves in a state of partial fermentation.
- III. He fed a similar number from the same batch of healthy worms with mulberry leaves sprinkled with water in which a crushed diseased worm had been stirred, with the result that scarcely a cocoon was spun by any of the three colonies detailed above.
- IV. The same treatment was given to batches of worms in their last age, when it was found that the power of the parasites was greatly reduced, as the worms generally had time to spin their cocoons before the disease was sufficiently developed to destroy them.

The conclusions to be drawn from these experiments evidently are, that *flacherie* is eminently infectious; that it is in a sense hereditary; and that it may be induced at any stage by careless feeding; and the lessons to be learned by the silk-farmer should be—(1) That constant watchfulness ought to be maintained in the nursery, not only regarding cleanliness and ventilation, but in order

that any diseased worms which appear may be immediately separated from the healthy ; (2) That crowding, particularly during the first three ages, should be avoided ; and (3) That the farmer should be microscopically acquainted with the quality of the food administered, and be certain that the leaves are clean, fresh, dry, and free from the least trace of fermentation.

Placing aside his own observations, Mr. Griffitt now returns to those of M. Pasteur, and gives a summary of the distinguished Frenchman's views on this dangerous disease. Referring to the organisms found in the intestinal canal of a worm which has died or been badly smitten with *flacherie*, he says that the vibriones (Figs. 36 and 37) retain their power of communicating disease for years, which is the main reason why this malady is so formidable. The germs may lie dormant for months in the dust of a nursery, yet bring them in contact with water, and in a few hours the microscope will display the dangerous things in full activity swarming in large numbers over the slide. When the disease has been the result of heredity it may be modified and even overcome by a frequent renewal of the air in the nursery, and by avoiding crowding the worms during their early ages. Indeed, these are the periods only when the teachings of science can be of any use, because, should the disease not be conquered to a great extent then, or should it be contracted before the third age, the little creatures are almost certain to perish ere they are ready to spin.

Accidental *flacherie* is due to the following well-ascertained causes, all of which, except one, are preventable :—

- I. By educating too many worms on a limited space ;
- II. By subjecting them to too high a temperature at moulting times ;
- III. By inattention to thorough and frequent ventilation ;
- IV. By a sudden change in the weather, either to heat or cold ;

- V. By feeding the worms with heated or fermenting leaves ;
- VI. By feeding the worms with mulberry leaves wet with dew or rain ;
- VII. By suddenly altering the diet from a leaf with a soft fibre to one of a tougher nature less easy of digestion ; or
- VIII. By using the leaves taken from a mulberry tree which had been newly pruned.



FIG. 36.—VIBRIONES OF FLACHERIE.

By any one of these means *flacherie* may be produced ; consequently, to be made acquainted with a certain number of well-known causes forearms the intending sericulturist against their occurrence. When, however, the disease appears in the last age of the worm as it is about to spin, it is owing, not to vibriones, but to organisms in the form of chaplets of small grains (Fig. 37).

In this phase of the disease the worm is not prevented

spinning its cocoon, nor will the chrysalis fail to change into a moth, nor the moth to lay eggs, should it have strength to penetrate its silken prison; but the progeny next season will either be diseased, or be ready for contagion to take root, and the whole brood will probably die of hereditary *flacherie*. In the event of the malady having been produced by vibriones (Fig. 36) the worms in almost every instance succumb before the silk can be evacuated, but should a cocoon be actually formed it will be so flimsy and

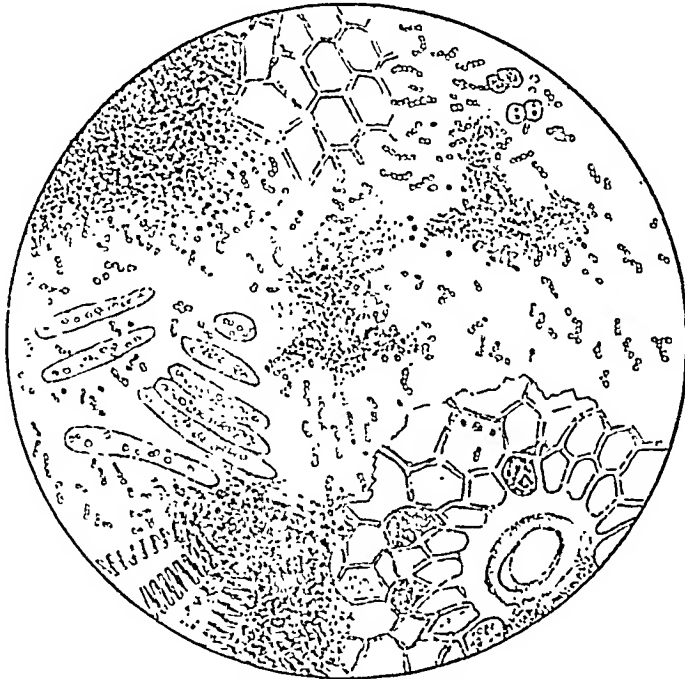


FIG. 37.—FERMENTS FROM STOMACH OF A CHRYSALIS, CHAPLETS OF GRAINS, GIVING EVIDENCE OF FLACHERIE.

light as to be of little value. It is therefore of the greatest consequence to the silk-farmer, who wishes to harvest a stock of eggs for the following season, to ascertain beyond a doubt the actual condition of his worms as regards the presence or absence of this disease during the last age. He should not be deceived by mere appearances. The cocoons spun may be large and attractive-looking, the moths when they emerge may seem perfectly healthy, and the *graine* laid all that could be desired; yet if the conduct

of the worms before mounting had not been closely watched, and the evidence of the microscope taken regarding any suspicious appearance, the farmer can only blame himself if he meet with disappointment and loss the following season through his educations being decimated or entirely destroyed by *flacherie*.

The educator may be so situated, on occasion, that he requires to depend on some other source for cocoons from which to rear *graine* than his own nursery. In such circumstances the microscope is necessary, and more careful manipulation is required than in the examination of moths. It is the chrysalis which demands his attention, and this, of course, can only be done properly a short time before the

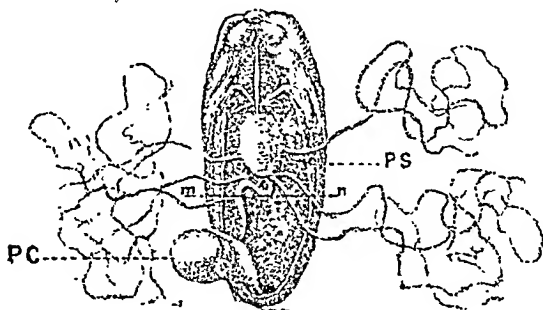


FIG. 38.—A DISSECTED CHRYSALIS.

transformation in the ordinary series of events would have occurred. A number of cocoons are taken indiscriminately, each of which is carefully cut open with a pair of sharp-pointed scissors and the chrysalis removed. Fig. 38 represents a chrysalis of the eighth day taken out of its cocoon and partly dissected, showing the chief internal organs. It will be seen that the stomach consists of two bags marked PS and PC, connected by a crooked tube. PS is the real stomach, which in a matured chrysalis is of a maroon colour; while that marked PC fulfils rather the function of a bladder, as it holds the fluids the moth discharges before and after coupling. On the line marked *m n* cut the chrysalis in two, then sever the under-part, or thorax, of the larger portion. This accomplished, the ball PS will be

disclosed to view as represented in the sketch. Draw out the ball gently with a pair of small pincers, and as the alimentary canal which unites the two bags PS and PC has already been divided, the ball in question can easily be removed. Having released it from its place in the chrysalis, lay the ball on a slip of glass; break the outer skin; take from the inside substance an atom of the size of a pin's head; mix it with a drop of distilled water, and subject it to examination under the microscope in the usual way. Should ferments in the form of small grains wreathed together (Fig. 37) appear on the disc of the microscopic slide, the examiner may feel assured that the education from which such diseased chrysalides were taken has been defective, and if he is wise he will not use one of the resulting moths for reproduction.

It may be asked, why not test the chrysalides immediately the cocoons are formed, and so save time, instead of waiting a week or eight days? The reason is this, when the chrysalis is formed the contents of its stomach are in a liquid condition, rendering examination correspondingly difficult; but by waiting seven or eight days, until partial evaporation or absorption has occurred, the contents become thick and resinous, particularly where the chrysalis is perfectly healthy and the stomach free from ferments. Take, however, a chrysalis suffering from *flachurie*, when it will be plain to the eye that the contents of the stomach PS are more bulky, that the ball is larger, than is the case in health; and that the colour, instead of being maroon, is dark green.

Two other tests remain to be mentioned. Before silk-worms begin to spin they invariably rid themselves of fluid matter. Should, therefore, any individuals seem to labour under a difficulty in performing such evacuations, an evidence of the presence of *flachurie* is offered which should not be disregarded. The other test refers to moths which have parted with fluid before or after depositing eggs. In the healthy insect this ejection is colourless

or pale yellow, whereas in the diseased it is grey or dark brown.

Such are the two worst and most dreaded diseases of the silkworm ; but there is another of an extraordinary nature which demands a few words of explanation. It is named

MUSCARDINE (Fig. 39)

in France, and *calcinetto* in Italy. The French appellation arose from a fancied resemblance in the afflicted caterpillar to a sugar-plum made in Provence, and sold under the name of *muscardine* (Fig. 39) ; while the Italian designation refers

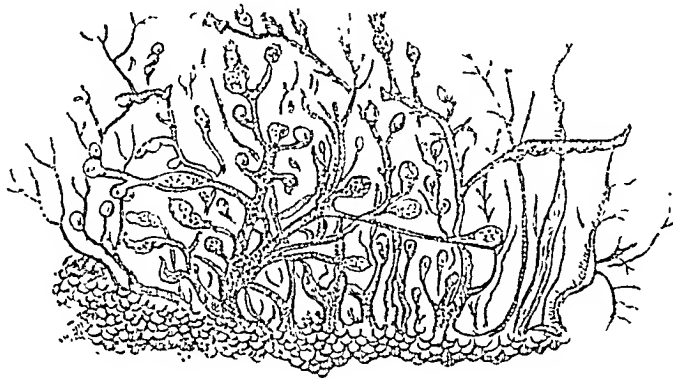


FIG. 39.—BOTRYTIS BASSIANA, SILKWORM MILDEW. (Much magnified.)

to the chalky or mealy appearance of the diseased worm's skin.

Examined microscopically the grub is seen to be full of the sprouting spores of a minute cryptogamous plant or mildew named *botrytis bassiana*, which eventually pierce the skin and produce the mealy, chalky, or leprous aspect which has suggested the distinguishing names of the distemper. The little creature, thus impaled on hundreds of tiny, ever-growing stakes, could scarcely be expected long to survive : accordingly it generally dies ere it has had time to spin, and the fungus, gathering fresh strength from the worm's decay, ripens its noxious seeds, which, wind-borne, extend the contagion far and near. Fortunately, like most

diseases which arise from neglect and filth, this one is now found to be well within human control, as it is caused originally by too high a temperature in the nursery acting upon quantities of fermenting refuse. Perfect cleanliness, copious ventilation, and the immediate removal of dead or infected worms are the three antidotes. In conclusion, it may be remarked that any other diseases known as yet to which the silkworm is subject are merely modified forms of *pebrine* and *flacherie*.

CHAPTER XIV.

USE OF THE MICROSCOPE IN SERICULTURE

REFERENCE has been made in the previous chapter, and in other parts of this work, to the aid rendered by the microscope in tracing the various diseases to which silkworms are subject, through some of their chief ramifications. Indeed, it may be freely acknowledged that without its assistance, in the hands of a master like M. Pasteur, the great industry of silk-producing, which for more than thirty years had been going headlong to utter ruin, would probably by this date have become extinct. Under these circumstances the reader will naturally expect that in a narrative of this kind a few pages should be devoted to the invaluable instrument, particularly as silk-farming, at no very distant day, may become an important calling in New Zealand and in other British possessions. Without further preface, therefore, with the help of my friend Mr. Griffitt's copious memoranda, and the vivid recollection of all I saw in that gentleman's beautifully-regulated nurseries and laboratory near Smyrna, this chapter will be devoted to some remarks on the proper use of the microscope in sericulture.

The early history of the microscope, like that of some other notable inventions, is lost in obscurity; but in its simplest stage, that of a single lens, it may safely be referred to a date long anterior to the time of Christ, at which period, as well as before and after, it appears to have been in use as a burning-glass. Two hundred and twelve years previously the greatest of the Greek mathematicians,

Archimedes, by means of lenses, succeeded in destroying ships by the concentrated rays of the sun ; so that, if he was not the actual inventor of the simple microscope, to him is certainly due the credit of having produced the condenser, one of the most necessary adjuncts of the modern instrument. To Galileo the invention has also been ascribed during the period he was mathematical professor at Pisa or Padua, about the year 1592 ; but Dr. Henry Hallam, in his 'Literary History,' page 426, inclines to the belief that the microscope, as well as the telescope, originated in Holland. "Cornelius Drebbel," Hallam continues, "who exhibited the microscope in London about 1620, has often passed for the inventor." Whoever the distinguished man may have been, a boon was conferred upon humanity which seems to have gained speedy appreciation among the learned, as we find that in 1657, 1661 and 1690, eminent surgeons and others by means of their microscopes, and following up the grand discovery of the circulation of the blood by Harvey in 1628, demonstrated to the eye the flow of blood in the smaller vessels. Since these early days the microscope has been greatly improved, and become such a potent instrument in education that most branches of science possess modifications of it, contrived expressly for the particular inquiry in which the student may at the time be engaged. So helpful has the microscope proved in every department of scientific study that the question need no longer be asked as to which of the "ologies" it offers the greatest advantages ; rather, it may be inquired, where is the science worthy the name which can now afford to relinquish its aid ? There is no medical man in these days of general intelligence but is dependent on his microscope to help him in his diagnosis of disease, in his search for the agent of crime, and in the discovery of, and putting to the blush, the clumsy adulterator of human food and drink. That which this wonderful weapon has already done for the human family in numberless cases of vital importance, it has

condescended to effect, in the hands of one of the most distinguished Frenchmen of the present day, for the humble but valuable little silkworm.

Except for ordinary and comparatively unimportant investigations, the simple microscope now gives place to the compound instrument, which varies in magnifying power from only a few to probably three thousand diameters, and may be purchased in every civilised country at prices equivalent to from a few shillings to £100, and even higher. For the special requirements of the sericulturist very keen magnifying power and a large quantity of subsidiary apparatus are unnecessary. The Messieurs Nachet et fils, of No. 17 Rue St. Severin, Paris, manufacture a microscope with a magnifying capability of five hundred diameters, already alluded to at page 94, which is said to meet perfectly all the demands hitherto made in investigations connected with the *pebrine* and *flacherie* distempers; and doubtless any of our own opticians could produce something similar, equally good and cheap. This instrument consists of a metal tube with lenses at both ends, the larger glass or the ocular nearest the eye, and the smaller, named the objective, next the substance or liquid to be examined, with screw adjustment for focusing, and the whole attached to a substantial brass stand. It is unnecessary to enter upon the internal arrangements of this or any instrument of the kind, except to say that good as these microscopes undoubtedly are for the purpose intended, they would prove better if made with a double barrel, as the student could then use both his eyes, and so escape the great fatigue the single-barrelled glass at present imposes on the investigator.

When an object is to be examined it is laid in a drop of pure water upon a clean glass slide, covered with a small thin film of prepared glass, then pushed under the objective until it is over the opening in the plate through which a stream of reflected light is projected from a little mirror below. One eye is closed and the other applied to the ocular, the

mirror of the microscope being at the same time adjusted until the slide and its contents are well illuminated, and the exact focus obtained with the thumb-screw. It will now be seen that the small lens is very close to the glass slide, so that care must be taken when removing the latter that the objective glass is not touched so as to be soiled or injured, as this part of the instrument is usually rather expensive to renew. Indeed it is safest for the investigator invariably to elevate the objective out of harm's way about half an inch or so every time a removal of the slide becomes necessary.

Say that the student is now ready to commence, it will be well to see that all the necessary articles are at hand. In the first place everything must be absolutely—that is, chemically, clean, and be laid conveniently upon a solid, moderately-heavy, firmly-planted, dark-painted or stained wooden table, placed in front of a window with, if possible, a northern exposure. On the table there ought to be a sufficient number of glass slides, several tumblers in which to put the slides after they have been examined; a box of round and square glass films for covering objects; a pair or two of small, metal, tong-shaped pincers, with which to pick up and conveniently hold slips, covers, and worms; a glass rod for dipping out drops of water; a pair of sharp-pointed scissors; a small mortar of agate or enamelled porcelain in which to crush worms and moths; a vessel containing water for washing the mortar, or a convenient tap connected with a water-pipe (if the former, the means of drawing off the water by the aid of a siphon made of rubber tube closed at the outside extremity with a spring); some fragments of old clean linen of fine texture for wiping the glasses; and a bucket, in the absence of a sink, to receive the slops, placed under the siphon.

Thus equipped, the examiner seats himself upon a stool, or armless chair, so that he may have perfect freedom of motion in the performance of his work. The microscope should be placed towards his left hand, with the vessel of

washing water, or tap, on his right. The shutters of the window having been previously arranged so as to admit the necessary amount of light, he fills his siphon, gives a final glance over the table, and is ready to begin.

With regard to the light, particularly in such favoured countries as Asia Minor, and the north of New Zealand, it may be remarked that the degree of natural illumination pouring in at an uncovered window might prove both hurtful and fatiguing to the eyes of the student, hence the necessity of shutters, and of their careful arrangement. It should be remembered, also, that a direct glare from the sun would prove altogether unsuitable ; hence the preference given to a northern exposure. But of all the conditions most favourable to the species of microscopic research under review, a cloudy day is preferable, during which the mirror of the instrument can be directed towards a mass of pure white vapour resting motionless on the upper sky, when a soft and agreeable degree of light will be obtained.

Let us suppose that the operator's first essay is the examination of a worm for the proof of suspected corpuscular disease. He takes up one with his forceps, drops it into the mortar, and crushes it along with a few drops of distilled water obtained from a bottle by means of his glass rod. When the worm is reduced to pulp, the edge of the pestle smeared with remains is lightly touched upon the centre of a slide, leaving a drop upon the slip, which is immediately covered with a little glass film ; care being taken not to spread the fluid beyond the cover on gently pressing it to expel the air. Placed under the microscope many appearances meet the eye. There are fragments of the worm's skin, portions of its viscera, globules of fat, air-cells, crystals, and, it may be, corpuscles. These crystals are occasionally of the same size and shape as young corpuscles ; consequently, great care should be taken lest the two objects be confounded with one another. In order to determine the exact character of the appearances, the little glass cover should be slightly touched, so as to cause a

change in the position of the matter underneath, as more fully explained a little further on. The various objects just enumerated are not seen altogether under one focus; they occupy different situations in the liquid between the two glasses; so, when any of them appears on the disc, it is necessary to keep turning the stage thumb-screws in order that nothing may escape the observation, and that all sides of each object may be noted.

The full-grown corpuscle is easily distinguishable by its shape and brilliancy, its oval or circular outline shaded and well-defined (Fig. 32). As the corpuscles float across the disc—which they continue to do with considerable speed for a short time, on account of currents in the liquid between the slips of glass—they at one moment appear oval, and the next circular. This curious change is accounted for by the explanatory fact that the real form of a corpuscle is similar to that of an egg. When the great axis, or its length, is presented towards the observer, it appears to be oval; but should one of its ends only be seen, the corpuscle is at once pronounced to be round. In this way both observations are correct, and the peculiarity of shape serves to distinguish the germ of the deadly parasite from globules of fat, crystals, or air-cells, which are always circular, and in the case of the crystals, angular. It is necessary, then, that the student, while his eye is looking down the tube of the microscope, should slightly press, and slightly move, from time to time, the little glass cover with the point of a pencil or needle, in order that the corpuscles, if present, should be made to revolve, assuming in succession the oval and circular aspects. Should no change from the spherical forms, after repeated trials, be detected, the observer may rest assured that his suspicions of *pebrine* were groundless. The crystals being rectangular in shape, when their edges are presented to the eye, nothing is seen except a dark line; when in full view, they cannot be mistaken for anything else. It is possible that the repeated moving of the little glass film may cause the liquid underneath to spread beyond

its bounds, and the slightest want of attention may bring the objective of the microscope in contact with it. Should this happen, the glass must be wiped immediately, or, if necessary, unscrewed and washed.

Having become familiar with the various aspects of the microscopic disc, both under circumstances of disease and health, the student should lose no time in commencing a register of his work for future reference, carefully noting

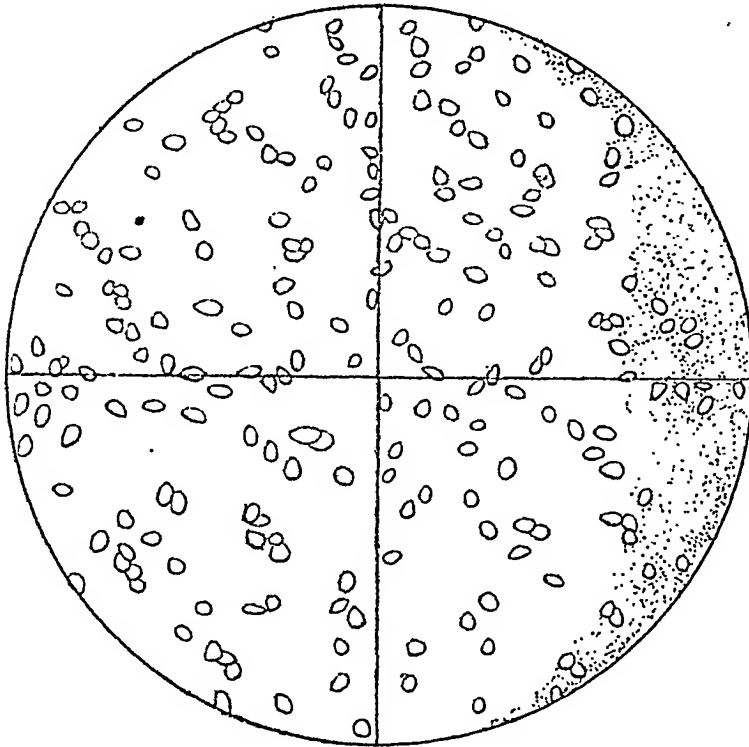


FIG. 40.—COUNTING CORPUSCLES.

the exact number of corpuscles seen on each field. As an assistance towards this end, the disc of the microscope is supposed to be divided into four equal parts, thus (Fig. 40). The corpuscles on one quarter being counted with a fair approach to accuracy, the sum multiplied by four will give the approximate total. Such figures ought to be carefully registered, together with dates, full particulars of the worms, moths, or *graine* examined, and any other information likely

to prove useful by way of comparison on future occasions. It ought also to be recollected that, as only a small portion of the matter under the little glass film can be seen at one time, namely, that part immediately under the objective, the slide must be gently moved about after each inspection, so as to lay the whole surface gradually open to the eye. In order to do this accurately, some microscopes are fitted with a useful little double-screw arrangement, by which the brass stage, on which the slide rests and is temporarily fixed, can be moved some distance backwards, forwards, and sideways, thus enabling the manipulator, not only to survey every hair's-breadth of the slide, but to return to discs already examined by simply keeping a note of the threads of the screws. The inspection being completed, the slide is withdrawn and placed in clean water, or the process may be repeated as often as necessary, when the contents of the mortar are burnt, and the vessel carefully washed, ready for the next examination.

INSPECTING FOR REPRODUCTION.

When the sericulturist is desirous of ascertaining if an "education" be fit for yielding eggs to be used for reproduction the following season, a number of fresh cocoons are taken promiscuously from the brushes, one here, another there, at intervals, all over the crop. These are placed in a room heated artificially several degrees above the temperature of the nursery. By this method the moths develop sooner and issue some days earlier than would otherwise be the case. As soon as they leave their cocoons they are examined microscopically, the wings having been removed, and should more than ten per cent. of them show traces of disease, the whole batch from which the cocoons were taken is stifled, and handed over to the silk-reelers to be unwound. On the other hand, if less than ten per cent. are corpusculous, or are wholly free from *pebrine*, they are

allowed to remain; the moths issue in due time, pair, lay their eggs, which are placed aside for incubation the following season.

Should eggs be the subject of microscopic examination, the aid of the mortar is not required. After a globule of distilled water has been placed upon a clean glass slide, a few eggs are dropped into it, then gently broken by pressure. The shells having been carefully removed, the liquid on the slide is covered with a glass film, and slid underneath the objective of the instrument. It need scarcely be said that the examination of *graine* in this manner is a peculiarly delicate operation; it affords less certain results than a similar inspection of the moth or worm, and can be undertaken satisfactorily only by persons well-acquainted with, and who have had large experience in, microscopic manipulation. The strain on the eye and the exertion of the mind are very considerable lest symptoms of disease should escape the observation, as the examiner well knows that the discovery of even *one single corpuscle* indicates a serious degree of pebrinous contamination. On the other hand, should the microscopist have sat down to his task labouring under a load of suspicion, and yet find nothing to justify it, he will be apt to fear that his dexterity, his eyesight, or his instrument has been at fault, and that his punishment awaits him the following year. He knows that the disease may even be there in a latent state, although the evidences of it are wholly invisible to his watchful eye. The same may indeed be said of the worm and of the chrysalis, which at one stage may be non-corpusculous, and yet evince signs of *pebrine* during a later age. The matter, in short, may be described as comprising a series of four steps in a difficult and important scrutiny, each of which is less obscure and involved than the previous one; the egg being the first and most troublesome, and the examination of the moth the easiest and most satisfactory. It will be evident, therefore, that with our present degree of knowledge the microscopical testing of silkworm's eggs for disease can

hardly be reckoned satisfactory even in the hands of the most skilful searcher, because his discoveries can prove nothing beyond the contents of the slide upon which he may happen to have been engaged. Instead of spending time in this way, the farmer will find it to be his interest to make absolutely sure of his *graine* by a previous examination of the moths which deposited it, and the adoption of Pasteur's Cellular System already explained in Chapter XI. Indeed, no better conclusion to this part of the subject could be suggested than that sage advice given by the great physiologist in his 'Études sur la Maladie des Vers à Soie,' where he says, as translated by Lady Claud Hamilton:—"If I were a cultivator of silkworms I would never hatch an egg produced from worms that I had not observed many times during the last days of their life, so as to make sure of their vigour at the moment when they spin their silk. If you use eggs produced by moths the worms of which have mounted the heather with agility, have shown no signs of *flacherie* between the fourth moulting and mounting time, and do not contain the least corpuscle of *pebrine*, then you will succeed in all your cultivations."

When microscopical examination is over for the day, the instrument and all its adjuncts should be carefully wiped and put aside, perfect cleanliness and order being virtues which every scientific investigator should cultivate. The glass slides are easily managed, but the little thin glass films or covers are rather fragile and apt to be fractured with the least rough handling. After having lain in water for some time, the best treatment is to remove them gently to a sheet of white blotting-paper, which will absorb the excess of moisture and present them ready for being wiped with a thin clean linen cloth kept solely for that purpose.

CHAPTER XV.

AGRICULTURE AROUND SMYRNA.

NOWHERE, perhaps, are better farmers and gardeners to be found than those of Scotland, for the good reason that few regions of the earth demand greater skill and perseverance on the part of the agriculturist than the "land of brown heath and shaggy wood." In many districts of Europe, Asia, and America the farmer requires to do little more than tickle the teeming clods with a hoe and sow his seed, when forthwith his acres laugh with plenty; but in rough old Caledonia, so loved of her sons, although at times she behaves so scurvily towards them, the hardest labour aided by the grandest of horses, the best machinery, and the choicest seed often fail to produce the barest living or keep the wolf from the door. Under such circumstances it is scarcely wonderful if the longing eyes of the Scotch farmer and peasant, in these days of improved geographical and other education, should sometimes stray with envy towards less inhospitable climes than their own. It is true that annually a few of the more determined and ambitious spirits among them, after much thought and hesitation, cut themselves adrift from the old country and emigrate to one or other of her distant colonies, yet by far the greater number remain at home to pass grumblingly through the same weary and unprofitable round of toil as their ancestors; while a limited section, who have so far profited by reading as to appreciate the advantages offered by the beautiful regions bordering the blue Mediterranean, must often wonder if along those classic shores there remain no

openings for them. It was partly with the view of aiding such inquirers with a few facts, as well as endeavouring to interest readers generally in the subject of agriculture in one important district of Asiatic Turkey, that some of these notes were originally penned.

Asia Minor is a large territory exceeding in area 200,000 square miles, situated at various levels from the vast fertile yet occasionally neglected plains of the seaboard to the high table lands of the interior, perched at altitudes mounting from 2400 to 5000 feet. It is mostly of volcanic origin, and contains many cones which formerly were doubtless in a state of frequent irruption. Among these is the volcano named *Agridagh*, possessing two craters which tower to the sublime height of 13,000 feet above the sea, and 10,000 feet above the adjoining plain. The average climate is reckoned as similar to that of the south of Europe, although upon the bare and waterless steppes the heat and cold are equally intense. Towards the south, mild winters and scorching summers prevail, near the *Ægean Sea* the characteristic is temperate mildness united with almost tropical vegetation; and no more delightful region for climate and richness of soil is said to be anywhere known than that extending between *Trebizond* and the *Sea of Marmora*. Having such wide limits within which to choose, it would indeed be strange if land suited to any and every taste and requirement could not be found, but it is more particularly to the vilayet of *Aïdin*—a magnificent region, measuring over 250 by 220 miles, or considerably more than three times the size of *Perthshire*,—recently* under the able sway of Governor-General *Hadji Nachid Pasha*, and the district in it near *Smyrna*, that the attention of the reader is now to be directed.

In whatever direction the inquiring eye looks, the same kind of loose, light, easily-worked soil, full of limestone

* Since these notes were first put together, this amiable yet firm and enlightened officer has been promoted to the wider and more responsible charge of *Syria*.

débris, is seen. Where former hollows and ravines have been filled up to the prevailing level by the forces of nature or the lapse of time, the deposit is of unknown depth and of surpassing fertility, while in other places the loam forms only a thin coating over a smooth, shelving limestone strata; but nearly everywhere, upon the plains or gentle slopes, it is of sufficient thickness for profitable cultivation, even with the bullock ploughs and other rude means at present at the disposal of the farmers. Such soil and such a dry climate, whilst quite unsuited for tea cultivation, is admirably adapted for the vine, the olive, and the mulberry, vast plantations of which, intermingled with cereal, root, fruit, and other crops, are common. Among the usual farming products of the district are, or rather were, madder roots, before the extended use of aniline colours in Europe threw this crop rather into the shade; soft and hard wheat of the finest quality, the latter specially well adapted for the preparation of macaroni; barley, oats, beans, pease, oranges, lemons, almonds, figs, pomegranates, liquorice root, and the already mentioned vines, olives, and mulberries. Indeed, it may be truthfully alleged that there is hardly a garden or farm product of Europe or America which is not or could not be successfully cultivated within the great vilayet of Aïdin; with the important advantage of a never-failing market on the spot for many of the crops, and a cheap outlet by sea for any surplus of future years, when the vast plains and fertile slopes near Smyrna shall have become tenanted by an improving race of scientific farmers unprejudiced by the agricultural legends and superstitions of past ages. Already the plodding perseverance of a German syndicate has clothed several hundred acres of the mountain slopes between the beautifully-situated village of Koukloudjah (Fig. 41) and Smyrna with vines for wine manufacture; and doubtless the Teutonic element, now being introduced among the population, will not tend towards diminution so long as Prince Bismarck's roving eye sees in Asia Minor a possibly

future inheritance. It may be pointed out, also, that in the cultivation of the mulberry alone a magnificent branch of husbandry awaits development. The silk industry is evidently destined soon to assume far more than its former dimensions, for the prosecution of which the immediate plantation of millions of mulberry shrubs will scarcely be adequate. Through the great exertions of a single Englishman, Mr. John Griffitt, of Bournabat, already mentioned repeatedly in these pages, the various silkworm maladies



FIG. 11.—KOCKLOUJAH, NEAR SMYRNA. OLD OLIVE TREES.

have now been prostrated before the irresistible finger of science, with the grand result, detailed further on in Chapter XIX.

In order to give a commercial idea of what the vilayet of Aïdin is like at the present moment, the following statistics, from the pen of His Excellency Hussein Hilmi Effendi, are culled from the *Journal de Smyrna* of the 9th May. After strenuously advocating the establishment of a "Statistical Bureau" for each province, according to the model adopted

in Europe, this distinguished officer plunges into figures thus:—

“The population of our vilayet has increased during the past year by 66,237, through the more or less permanent settlement of the neighbouring nomadic tribes in our midst, who have reared during the same period 9397 dwellings. The actual census of the whole population, not yet quite finished, shows a total of 1,052,115 inhabitants, to which, it is believed, some 400,000 remain to be added. The population of Smyrna is—Mussulmans, 52,196; Greeks, 71,083; Armenians, 4498; and Jews, 18,632; or a total of 146,409. Administratively the vilayet is divided into 5 sandjaks, 38 caras, 46 nahies, and 2454 villages. During the past two years 150 kilometres (or over 93 miles) of carriage roads have been made. The vilayet possesses 1,393,000 sheep, and 1,575,000 goats. The area covered by forests is about 10,000,000 denoums (about 6365 acres), and the annual amount collected on account of the agricultural tax is £161,185. Without reckoning the revenue derived through the Custom House, and arising from the six indirect sources, the budget of the vilayet amounts to £897,433, against £271,290 of expenses. During last year 3507 vessels under the Ottoman flag, the tonnage of which amounted to 108,013 tons, entered the port of Smyrna; also 1838 foreign flags of 1,051,896 tons. The value of exports to Europe during the same period came to £2,474,700, and for other parts of the world, £30,000; whilst the imports from Europe showed a total of £2,311,658. During the past year minerals to the value of £150,000 have been extracted from the mines, consisting of emery-stone, zinc, sulphur, anthracite, manganese, lead, copper, chrome, antimony, marble, porphyry, amianthus, iron, lignite, &c. Two great rivers pass through the vilayet, the Mæander, which runs for 300 kilometres (over 186 miles), and the Hermus, 233 kilometres (over 144 miles). The two highest mountains are Tmolus, which is 1500 metres in height, and the highest point of Cadmus is 2500 metres.”

At this point a short digression may be permitted in the interests of the Liberal and more enlightened, because better educated party in Turkey. The rising young officer whose statistical remarks have just been quoted, is what in this country of ours would be called a self-made man. Of humble origin, he has risen by perseverance, study, rectitude, and sheer ability to a position in the Civil Service which carries with it by right the title of "Excellency." For some years he had been secretary to the government of the province in which Smyrna is situated, and on the recent promotion of his superior, Hadji Nachid Pasha, to the governorship of Syria, Hussein Hilmi Effendi accompanied him thence to occupy a similar position.

It may also be interesting to the young reader to add that the latter gentleman attributes much of his success to the training he received under the celebrated Kemal Bey, the present governor of the island of Rhodes, during a former period when administering the affairs of the lovely island of Mitylene. Kemal Bey is, and has for many years been, recognised as the chief poet, dramatist, and historian of Turkey. His tragedies, written some in Turkish and some in French, are highly commended, and his history of his country is considered the best extant. During the reign of the late Sultan Abdul Aziz, the distinguished literateur became an exile on account of the blunt honesty and frank liberality of his political opinions, and some of his foreign and other friends think that his present position at Rhodes, for a man of his great ability, is little better than a shabby postponement of release from the original firman of expatriation. Under this eminent man, Hussein Hilmi Effendi was trained along with many others of the present Young Turkey Party, and it speaks volumes for the master that all of his disciples now fill important positions in the Turkish Civil Service.

In a thirsty land such as that of Asia Minor it will be rightly inferred that during the heats of spring and summer copious irrigation is necessary, yet there is

seldom any complaint of the lack of water over a strata so charged with this invaluable fluid. Little rivers and streams are numerous, particularly near the base of the intersecting hills or mountain ranges; fountains and springs gush forth at the most unexpected places; and wells, being cheaply and easily dug, are to be found dotted all over the towns, villages, hamlets, and country places, wherever human beings have made their homes or settled down to any kind of industry. Of the natural fountains near Smyrna, the most interesting is that named by the Turks Halka (iron ring), Bouuar (a spring), doubtless an allusion to the irregularly circular form of the pond; and by Europeans "Diana's bath," on account of a colossal marble statue of that goddess having a few years ago been found under the water. The locality is also notable as being one of the spots assigned by tradition to the birth-place of Homer, and as adjoining the grotto where the grand old poet wrote his 'Iliad'; but poet, birthplace, and grotto have all disappeared, whilst the fountain, bubbling up over a majestic basin of three and a half acres in extent, is as copious as ever, and, after driving some extensive mills, forms the river Meles, and flows leisurely away towards the Bay of Smyrna.*

Another example of a natural and never-failing water supply occurs a short distance above the little town of Nymphio, about twelve miles from the great port of Asia Minor. At that spot four springs issue from the limestone crags at points very near each other, and unite into a considerable mountain torrent, which, gathering force and volume as it advances through a narrow valley, drives the wheels of no less than eight flour-mills ere it reaches the town. Flowing boisterously through the streets of Nymphio it supplies all that cleanliness requires, then passes downwards to irrigate the extensive gardens and cherry orchards in the plain beneath.

But even the best soil and climate, with water *ad libitum*,

* See footnote regarding the river Meles, Chapter IV. p. 52.

might fail to tempt the Scottish farmer from his heather and whins unless he knew that plenty of willing human muscles could be had for fair wages in the country under review. Accordingly, the long-headed agriculturist of the north is assured that this is what is continually happening. So attractive is the neighbourhood of Smyrna as a field for labour, and, unfortunately, also as a theatre for the exercise of nomadic proclivities, that thousands of the population of the adjoining Greek and other islands flock annually thither to make money with greater speed than would be possible within the circumscribed limits of their own bare, rocky homes. Among the most successful of these industrious cultivators are the Ionians, of whom some 40,000 are now permanently settled in the vilayet. These hardy sons of toil leave their own narrow valleys a set of ragged-looking vagabonds, and migrating to a land of plenty in a few years become rich. The erewhile tatterdemalion from classic Ithaca, Cephalonia, or any of the other islands, soon becomes the happy owner of vineyards, orchards, and olive plantations, dresses on holidays in all the picturesque splendour of the Greek costume, and ere he is much beyond middle age would scarcely feel flattered at being mistaken by a stranger for a cousin of King George.

On the other hand, a set of less desirable visitors, like the Irish reapers of the olden, and agitators of modern times to England and Scotland, turn their faces every season Smyrnaward. These are the begging impostors from Scio, Mitylene, and some other islands not Ionian, who, during the period their own crops are growing at home, pass over in shoals to Smyrna to loaf on the community. Haunting the archways, the quays, the railway stations, the streets, and even the konak, these sturdy mendicants, with pitiful gestures, spacious tales, and sometimes tears, endeavour to engage the sympathies and secure the coin of the passers-by. How little worthy of charity such scoundrels are and how thoroughly they deserve the treadmill may be gathered from the following anecdote:—

A short time ago a letter was picked up in one of the wards of the Greek Hospital which had been written, and accidentally dropped, by a pauper visitor to a recently discharged patient. Its purport was as follows:—

“Dear Father,—Leave the plough and come here. This is the land, the promised land, of milk and honey. Take up your staff and come without delay! Bring your bag, and soon it will be replenished with the whitest of bread, and your pockets be lined with chinking piastres. I make my medjid (about 3s. 8d.) a day out of the poor fools who fill our wallets and purses when they are so much worse off than we.”

Thus, in addition to the indigenous labour always to be found within the country, there is generally plenty of new, honest Ionian muscle over and above the mendicant element from the Archipelago—an element which, in the hands of a despotic Government like that of Turkey, could easily be compelled to work or immediately leave the mainland.

In the vicinity of Smyrna the average cost of ordinary field labour is about 2s. 6d. a day of 7½ hours, commencing at seven and finishing at four, with intervals amounting to 1½ hours. Indoor female work, on the other hand, such as tending silkworms, is paid for at the rate of six piastres, or one shilling and three pence per day of fourteen hours. A little farther away, at Vourla, the cost is about 3s. 8d., but the day is reckoned from six to six, less 1½ hours for meals and rest, or a working period of 10½ hours; whilst up in the interior, about 150 miles away, the peasant is quite content to receive for his labour the equivalent of one shilling a day of indefinite length. The average agricultural value of land is less easily ascertained by the stranger passing only a few months in the country, as so many circumstances foreign to his home experience require to be taken into consideration. As a rule, however, where the authorities are dealt with direct, the terms are very favourable, particularly for the small agriculturist corre-

sponding to the British crofter. Take, for example, the easy and liberal arrangement made with the planters of new vineyards where none existed before. The vine, it need scarcely be said, is an important source of wealth in Asia Minor, and its culture has been materially increased within the last thirty years, more particularly since the phylloxera pest became prevalent in France. From the vine the people obtain their treacle, preserves, wine, raki, spirit of wine, and vinegar. About six years ago the hills behind the village of Bournabat, a few miles out of Smyrna, were covered with jungle, and useless; they are now, to a considerable extent, clothed with vines, belonging, in every instance, to families who were once the poorest peasants. Their method of reclamation is as follows:—Each person makes a selection on those hills, and during his leisure hours, after his usual employment, clears away the bush, which sells for firewood at a remunerative price. When the land is free it is planted with vines, the same routine being repeated season after season until the vineyard is as large as he and his family can manage. As the planted areas are successively completed, a Government officer measures the land occupied, and the peasant pays at the rate of one medjid* per doloon—a doloon being forty square paces—when he becomes the proprietor, and in a surprisingly short time little independent revenues of £30 to £50 a year are realised. In the course of time the vineyards increase to breadths of three to ten acres, and when owned by sober, industrious

* The largest silver coin of Turkey is the “medjid d’argent,” and the smallest, the piastre. The value of the former is usually 3s. 4d., and the latter from 2d. to 2½d., consequently the British sovereign is worth six of the first, or one hundred and ten of the second.

To be fairly accurate with this square measure of land, it is sometimes spelt “donoum,” and consists of 40×40 pikes = 1600 square pikes, or about 1050 square yards. A British square acre contains 4840 square yards, consequently a donoum is considerably less than quarter of an acre. In measures of length for rough calculations, one yard may be reckoned as equal to one and a half pikes Turkish.

men, as most of them are, the income derived places them in a position of great comfort. One race of peasant farmers known as the Kara Giorghis, who some years ago worked as day-labourers at seven piastres per day (a little over one shilling), now draw from their vineyards equal to £600 a year. Forty years ago nearly all the vineyards round Smyrna belonged to Mohammedans, but since the abolition of forced labour the thrifty, intelligent Greeks have fairly bought out the Turks. It was probably owing to this change of ownership that the former curse of brigandage was suffered so long to exist, seeing that the Greeks and not the faithful followers of the Prophet were the chief sufferers. Fortunately the late governor, Hadji Nachid Pasha, thoroughly stamped out this nuisance, and the present viceroy is said to be equally determined to continue the same wise policy.

On the other hand, it will be found occasionally that an endeavour to secure an eligible site for farming operations from private individuals is far from encouraging, where facilities exist for the rapid conveyance of produce to a market. An illustration may be given in the magnificent plain which extends to the north of the Tmolus range of mountains, and is bounded on its northern side by the river Hermus, which debouches in the Bay of Smyrna. About midway on the north side of this vast meadow stand the ruins of ancient Sardis, and between this site and the mountain range all the territory for many miles formerly belonged to the noble Turkish family of Carasmân Oglou (son of the black Osman). During the time of the first proprietor and for centuries after, this land, although eminently fertile, possessed no value except for cattle-rearing, and parts of it were gradually alienated and became the property of families of industrious Greeks, who, for mutual protection, assembled themselves together in the little village of Chobanissa, a few miles from the large town of Magnesia-under-Sipylus. In the course of time a line of railway was constructed along the banks of the Hermus from Smyrna to Philadelphia, passing through this little

Greek village, with the result that property at once rose in value, and cannot now be had under from £16 to £40 per acre. Another interesting fact may be mentioned, as elucidative of the grasping, unscrupulous spirit of petty thieving which is not confined to the worst specimens of shrivelled squirearchy at home. When the Greeks of Chobanissa began to look somewhat successful and comfortable in their well-kept little farms and orchards, the representative of the black Osman family, who had been through extravagance drifting backwards in worldly prosperity, made a claim upon the honest crofters for pasturage rent, demanded compensation for space occupied by roads, and a slump sum for their village green. His intended victims, in no sense daunted and secure of their position and rights by documentary evidence and the best legal advice, defied the great landowner, on the very plain fought over two thousand years before by Cimmerians, Persians, Medes, Macedonians, Ionians, Athenians, and the great monarchs Sesostris and Darius—beating him and his myrmidons in every encounter both on the field and in court, and remain at the present moment masters of the situation.

Not one of the least important considerations for a proposing settler in any country is the rate and kind of taxation. In Asia Minor this is somewhat heavy, being a charge of twelve per cent. upon all crops. Formerly it was ten per cent., and was then very properly called a tithe; but within recent years two per cent. additional has been added, to establish a fund to be expended on the making of roads. The money has been faithfully collected, and it is to be hoped that under judicious management every year will see the teeming country more thoroughly opened up, and prepared for the important operations of the capitalist. There is also a land-tax levied upon the space occupied, likewise a small impost per head on cattle, horses, sheep, goats, and other domestic animals. While on this topic, and in order to deal impartially with the subject, it may be mentioned that although the taxpayers' expenditure hitherto has been considerable, the Government officials

have not been standing still, for the greatest curse of the country, brigandage, has been entirely suppressed; and one may now wander from one extremity of the vilayet to the other without precautions or fear. There is, however, another source of anxiety to the farmer which might, and doubtless soon will, be mitigated, if not entirely removed. Among the hills, at a distance of probably half-a-dozen miles from the towns or villages, wolves still range, and sometimes destroy domestic animals sent there for the fresh pasture in spring. Wolves are proverbially cowardly and have never been known to attack human beings among these heights, but goats and mares with foals occasionally fall victims to their audacity. As cultivation spreads farther and farther into the interior, so will these vermin undoubtedly retreat; but meanwhile the active soldiery of Smyrna, who lately gave such a good account of the brigands, might be profitably exercised every spring and autumn in wolf-hunting, thus keeping their hands in as marksmen, and saving an industrious class from many a disaster.

This is hardly the place or the occasion for attempting to exhibit the contrasts which exist between Asiatic and British methods and implements of agriculture. It should not be forgotten that although the records of civilisation in Asia Minor are probably the most ancient in the world, the country has suffered more than any other from wars, invasions, rebellions, and natural convulsions, consequently the arts and sciences which once flourished so resplendently at Ephesus, Sardis, Philadelphia, Smyrna, Pergamos, Thyatira, Laodicea, Hierapolis, and other great centres, are only of late years being revived. The district of Aïdin possesses now two railways, besides branches; roads are being constructed, protection to life and property is well assured, and the way is daily being made smoother for the sturdy capitalist farmer who will come, accompanied by his steam ploughs and diggers, his traction engines and thrashing machines, and once more make Asia Minor one of the gardens of the world.

CHAPTER XVI.

FRAUDULENT INSURERS IN SMYRNA.

AN Italian lady replying to a young friend who had consulted her regarding his prospects and intended sojourn at Smyrna, with the object of endeavouring to rebuild the shattered fortunes of his family, said, "My son, beware of the three scourges of the Levant." "What are these, good mother?" "Two of them, my boy, you will soon become painfully acquainted with, namely, fire and the dragoman; the third, Heaven forbid that you should ever experience—it is the plague!" The words of the old contessa, uttered an unknown number of years ago, like many famed apothegms of wisdom, however applicable when spoken, require modification at the present hour. To take the last scourge first: although Smyrna may not yet be all that the sanitary engineer could wish, its condition is infinitely better than when the terrible "Black Death" of the Middle Ages swept through Asia and Europe, and its inhabitants are less likely, under the skill of so many able doctors as are settled there, to again fall victims, in large numbers, to the plague. It is true that the individual dragoman, here and there, may still prove an occasional thorn in the flesh, but it would be unfair to condemn a most useful, and in many cases, indispensable class of men for the shortcomings of a few. Unfortunately the first scourge alluded to by the ancient dame remains, not only unconquered, but, on the whole, more prevalent than at the time when Lord Keeper Bacon, on opening Queen Elizabeth's first Parliament, said, "Doth

not the wise merchant, in every adventure of danger, give part to have the rest assured?" It is to some of the circumstances connected with this unhappy state of matters that the following remarks apply.

Midnight conflagrations in cities and towns nearer home, particularly in winter, are not so scarce that astonishment need be expressed at their greater frequency in Smyrna, when it is remembered how largely wood enters into the construction of houses, and how universal is the practice of smoking among all classes everywhere. Still, after making every allowance for the inflammability of the houses generally all along the Levant, there remains a serious percentage of annual fires attributed solely to the villainous work of the slinking incendiary. Under such circumstances some of the resident agents of home insurance companies—for the Smyrniotes are enthusiastic insurers—have been blamed with a degree of recklessness for accepting doubtful risks, as the flimsy, closely-packed structures, and the gay, metallic badges of so many well-known home offices which appear upon their fronts abundantly testify. Perhaps the accusation is not devoid of foundation, if the word of one of these gentlemen is to be accepted as a fairly correct experience, and as representing some of the objectionable kind of business too often transacted. He stated that during the three years 1882, 1883, and 1884 the premiums collected in Smyrna for insurances of this nature had been about £25,000 per annum, while the payments of losses by fire in the course of the same period had been £50,000 a year. Now, if this large sum came solely out of the pockets of a few agents eager for business, or from the coffers only of some directors at home, the injury done to commerce and to morality would be less, for the game would speedily be found not worth the candle. Unfortunately it is the honest trader in Great Britain who ultimately pays for this folly—the *bonâ-fide* insurers, the shareholders, and the proprietors of debenture bonds—in higher premiums than might otherwise be required, in fluctuating or reduced dividends, and

sometimes in the total disappearance of their hardly-earned money when lent to a reckless company which suffers severely through its Oriental losses.

On the other hand, and as an excuse for speculative transactions such as those indicated, it is alleged that when a house in town owned by a native is once insured, the risk to that particular property and to the others around it is intensified. The neighbours are, in a measure, compelled to go and do likewise, as no one can tell, or even conjecture, who among them is honest and who a rascal. The demand for insurance springs up immediately; if one agent eschews the risk another will accept it, and thus whole blocks of inflammable material, with most picturesque outlines and decked in the liveliest colours, get upon the books of the insurance companies, as it were to-day, and are all dissipated in smoke to-morrow. It is a common saying that in the districts into which the soft-spoken tongue of the pushing insurance man has not yet penetrated, fires seldom occur, whereas in others better acquainted with the brilliant metallic badge, and the imposing policy, conflagrations are seldom long absent. Indeed, the remains of houses both in town and country are often pointed out which had been purchased for a song, flimsily repaired, heavily insured, and purposely set fire to the following night. The difficulty of proving such a base purpose and detecting its execution is so great where, generally, every trace is gone, and the proceedings of the courts so tardy and uncertain, that the incendiary calculates upon always evading punishment, and is correspondingly emboldened by each escape from the grasp of the law. Occasionally, however, the educated culprit, as sometimes happens at home, less cunning than his unlettered associate, omits some little common precaution, and is pounced upon in the very act of incendiarism. Some years ago a native doctor was apprehended one night on leaving his premises. Suspicion had previously rested upon him on account of his mysterious ways; he was watched by the agent who had insured his house; he was

seen on that occasion to leave it surreptitiously; it was immediately entered by the police, and in every room the evidences of an arranged conflagration were seen, and part of the building was alight. Fortunately the fire was easily smothered, but the proofs of guilt were so full and condemnatory that the culprit was quickly convicted, and sentenced to ten years' imprisonment. This and some similar cases, however, are said to have been exceptional in regard to conviction, as the fire-raisers of Smyrna have generally laid their plans with the wisdom of the serpent. Not a trace of the fired building usually remains to tell a tale, far less to convey the slightest hint of how the conflagration occurred. Accordingly, the insurance companies interested pay up the loss as smilingly as they can, and, in nine cases out of ten, that ends the matter. At the present moment the loose commercial morality now being exposed seems to improve but slowly, and it is believed that the midnight torch does its horrid work almost as frequently as of yore. But for the efficient fire-brigade with its powerful engines—maintained solely at the expense of British insurance companies—aided by a system of securing most of the business premises in Smyrna and many of the private dwellings, particularly those belonging to Europeans, by means of outside iron shutters and doors (Fig. 42), fires occurring at the present time would prove even more disastrous than ever, on account of the larger amount of property involved.

Mention having been made of rickety houses purchased with the express purpose of being insured and then burnt, it may not be out of place to relate a laughable episode connected with a rickety boat and marine insurance dispute, which happened in Smyrna not long ago. An Ottoman subject had received goods from France by one of the "Messageries Maritimes" steamers; the goods were insured from the pier at Marseilles to the quay at Smyrna. On the vessel's arrival the merchandise was placed by the agent of the steamboat company in his own lighter to be

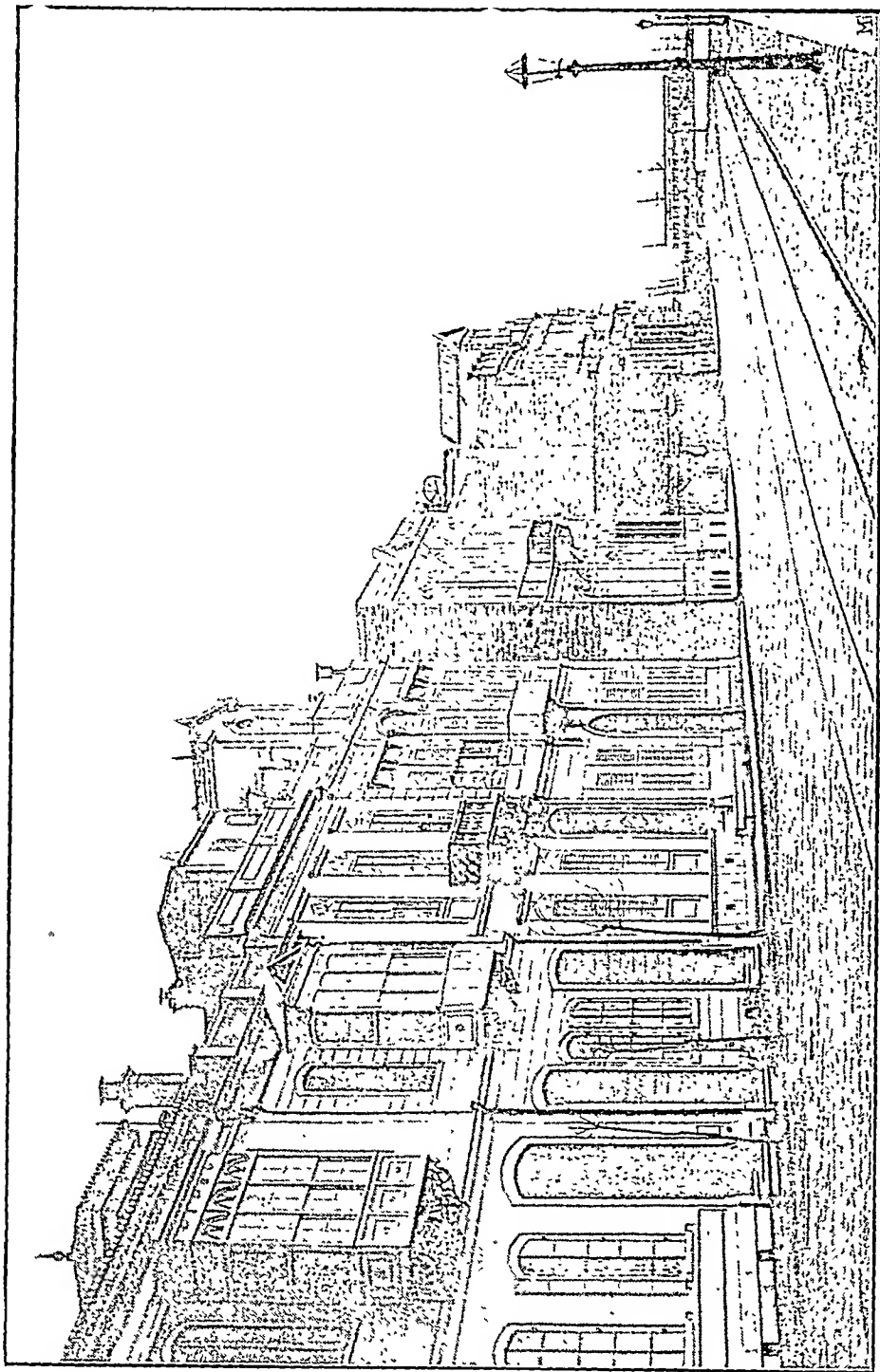


FIG. 42.—MARBLE FRONTED HOUSES.—SMYRNA.

conveyed to the Custom House pier. When crossing the harbour the lighter is said to have sunk, not through stress of weather, or collision, or by reason of the surge from a passing steamer, but on account of the utterly rotten condition of the boat. Application was accordingly made to the French steamer's agent for the amount of the policy, but he coolly stated that his responsibility ceased when the goods were discharged over the side of the ship into the lighter. An action at law was immediately brought by the consignee against the steamboat company in the Court of the Mixed Tribunal for the amount. The case was stated by the plaintiff in person, while the agent of the "Messageries Maritimes" conducted his own defence. In concluding his view, he illustrated the transaction by comparing the steamship company he represented to a caravan of camels carrying goods from the interior, and remarked that the "devigee," or camel-driver, could not be held responsible for any mishap on the way, or at the termination of the march.

The plaintiff's attorney, a man of considerable humour, said, "the argument used by my distinguished friend shows much ability, but he has made one trifling omission. He forgot, or considered it unnecessary, or perhaps he thought it injudicious to state to the Court that caravans of camels in this country are invariably preceded or led by a little, long-eared, noisy animal, which guides the larger and more uncouth quadrupeds, and so keeps them out of trouble. I do not for a moment mean to compare my honourable and experienced friend to that small, long-eared, useful creature; yet it seems to me, as I believe it will to the gentlemen of this important tribunal of many nationalities, that the agent of the 'Messageries Maritimes' stood exactly in the shoes of that patient little ass."

The effect of this simile was electrical, and the roars of laughter, which greeted this apt illustration and amusing sally, proved as disconcerting to the unfortunate agent as it was successful with the Court, who immediately decided

against him on the plea that the lighter was unsound and unseaworthy.

As a specimen of the difficulty and loss of time, not to speak of the outrageous expense which attends the efforts of an insurance company to defeat an unfair claim arising out of a fire, the following appeal case, with only a suppression of names, is condensed from a Constantinople newspaper of January, 1885:—Towards the end of the previous year a fire occurred in an ironmongery and furniture store in Smyrna, by which it was alleged that a considerable quantity of goods was destroyed, or had disappeared during the excitement. No imputation was brought against the character of the tradesman as having in any way caused the fire; the agent of the suffering insurance company simply resisted payment of the policy for £650, on the ground that the loss, and some of the statements of the plaintiff, were exaggerated. The trial took place before one of the consular courts, and dragged out a weary length of fifteen days, when judgment was given against the insurance company, whose agent immediately carried the matter to a higher tribunal at Constantinople. There an eminent judge examined the case on its merits, exposing the exaggerations of the plaintiff by pointing out that the goods enumerated in the inventory of loss could not possibly have been packed into the space named therein; that three shelves of a store had been, with metaphorical daring, expanded into three floors of a warehouse; and that the asserted loss of a multitude of iron tools by theft, with an efficient company of soldiers and a salvage-guard outside the building, was wholly improbable. He also animadverted upon the manner in which the trial had been conducted at Smyrna, administering a well-deserved rap over the knuckles to those at fault; winding up by stating that he believed there had been the grossest exaggeration, and that, had he been charging a jury, he would have said there were evidences of fraud. Accordingly, instead of the amount given by the Smyrna

Consular Court, he awarded only £250, with the salvage, but held the plaintiff liable for the costs of appeal.

In a word and in conclusion: Were the native communities themselves at once the insurers and the insured, the strong presumption is that the blazing piles of Smyrna and the surrounding villages, so alarming to all honest persons living near, would soon become the rare exception rather than the rule. So long, however, as scoundrels think that any rude collection of inflammable huts, called shops, dwellings, stores, or workshops, can be insured in British offices at the premium of one and a half per cent., and that the amount so arranged for is invariably paid, so long will this heartless and criminal incendiarism and exaggeration of losses endure, to the deterioration of all who practise it, and to the injury of shareholders and others at home.

CHAPTER XVII.

THE SMYRNA AND AİDIN RAILWAY.

As a rule, the early railway lines of most countries having been constructed mainly for ordinary heavy traffic, and, as the pioneers of civilisation, could scarcely be expected to yield that pleasure and special gratification to the scientific wanderer, the artist, or even the tourist that more modern railways supply. Accordingly, when an exception is met with, it seems a duty, or at least it is but fair, that the travelling public should be made acquainted with it, and such an exception is undoubtedly presented in the Smyrna and Aidin line, extending through part of the most important province of Asia Minor, from Smyrna to the village of Seraikeuy, a distance of $143\frac{1}{2}$ miles. Besides passing through a richly agricultural country, opulent in almost every known cereal, vegetable, and fruit, it winds through most picturesque scenery, it overhangs the wildest precipices, it climbs by the steepest gradients through the gloomiest of tunnels, and, at length, after a passing glimpse at the site of Ephesus, brings the passenger to within a few miles of one of the great wonders of the world—the ruins and marble terraces of the ancient Hierapolis, and the honey-combed volcanic Laodicea.

During the first twenty miles or so, after leaving Smyrna, the well-cultivated ground seen on every side gradually rises, until it culminates in a vast tableland, rather swampy in places, and consequently somewhat feverish—a fact proclaimed by the occasional yellow faces and lustreless eyes

seen at the wayside stations of Djumovassi and Develikeuy. Here it may be remarked that the stations on this line of railway, as well as on the other stretching over the 105 miles which intervene between Smyrna and Alascheir (the ancient Philadelphia), are wholly open to the loafing as well as the travelling public to come and go as they please; and are liberally used as haunts for the thirsty, and happy hunting-grounds by the enterprising in small wares and fruit, and by the destitute. Little round wooden tables are planted in the middle of groups on the platforms, upon which such refreshments as may be ordered are placed; and while some are sipping coffee, swallowing mastic-flavoured raki, or eating fruit or cakes, others are smoking cigarettes or water-pipes; while round them gather the would-be sellers of antique gems, bronzes, coins, and potsherds, and among their feet creep sometimes the most repulsive-looking mendicants, holding out little copper saucers for alms.

The first ancient remains which strike the eye on this route occur in the Turbali district, which is also the name of a station thirty miles from Smyrna. These are the ruins of Metropolis, nestling silently some little distance over a beautiful, although uncultivated, plain at the base of the Gallessium range of mountains. On leaving the station, the cold grey walls of the acropolis are distinctly visible about three miles off. The first to identify these fragments with the classical city was the well-known M. Fontrier, of Smyrna, who made his discovery during a partridge-shooting excursion in the neighbourhood. Through his facility in deciphering and collating ancient Greek and other engraved stones, he has had other successes, and is likely to be rewarded with more in the future. The name Turbali is believed to be simply a Turkish corruption of Metropolis, and the ruins in situation correspond to that mentioned by the old geographer Strabo, who assigns their position as midway between Smyrna and Ephesus. Unfortunately for the antiquarian or artist, very little is left of them except a

few uncouth fragments of foundations, some vaults, and a shattered theatre, while most of the marble has been removed. To the still unwearied tourist, who may have seen all he cares to examine at Metropolis, additional objects of interest await him at the Ionian city of Colophon, situated on the further side of the mountains, and distant about three and a half hours' ride. The plain of Turbali is of great

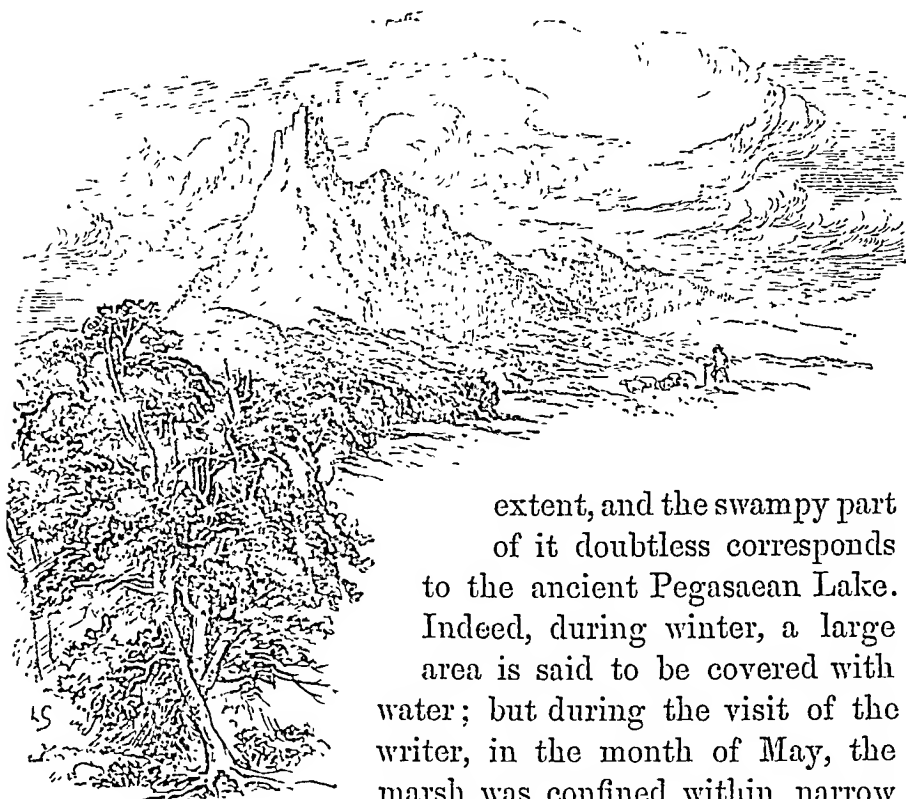


FIG. 43.—KELCHIE KALEH, OR GOAT'S CASTLE, NEAR TURBALI, ABOUT THIRTY MILES FROM SMYRNA.

extent, and the swampy part of it doubtless corresponds to the ancient Pegasæan Lake. Indeed, during winter, a large area is said to be covered with water; but during the visit of the writer, in the month of May, the marsh was confined within narrow limits, and over the whole, large herds of buffaloes and horses were grazing.

Although the eye of the artist will have been gratified by the varied form and colour of the landscape and foliage hitherto passed through, the first near fragment of the picturesque met with is Kelchie Kaleh, or the Goat's Castle, not far from Turbali (Fig. 43). This is an ancient feudal stronghold crowning a bold rocky summit, and has

the legend attached to it, common to some others, of having been finally taken by the light of lanterns tied to goats' horns, the creatures having been driven up the crags for that purpose one dark night. Shortly after passing this ruin, the railway crosses the river Cayster, which flows downwards to the marsh at Ephesus, in the midst of which the Temple of Diana once stood; and in a few minutes more, at a distance of forty-eight miles from Smyrna, the station of Ayasouluk is reached about a quarter-past ten A.M. (Fig. 44).

This is but a trifling village, built around the base of a hill upon which an old Byzantine castle stands. Some of the houses seem new, and look cool and inviting in their pretty pale blue and white coats of paint, and contrasting artistically with the rich, warm brown of the few immense pillars of a former aqueduct which remain, and whose only duty is now to support each a stork's nest. But let the judicious artist or other traveller beware of passing a night there; let no temptation of form, colour, or picturesque-ness—let not even the almost irresistible allurements of the great Ephesian city on the swampy plain a mile below prevail, for as surely as he goes to sleep with health and innocence on his brow at Ayasouluk or Ephesus, will he awake on the morrow with fever in his veins.

The castle is a large rude edifice, into the walls of which some of the spoils of Ephesus have been built, without the slightest regard to the value of the sculptures so misused. There is a mosque, of course, but any little beauty it possesses is imparted by the marbles and granite columns stolen from Diana's shrine. In a word, Ayasouluk and its buildings are a jumble of barbarisms and splendid remains, the sight of which makes one's blood boil with indignation to know that such treasures of art should have been filched from their original position to furnish this and other wretched patchworks with mere building materials, regardless of the inscriptions or carvings they bore. From this village no

portion of Ephesus is visible, although a glimpse of it is obtainable from the castle walls; accordingly, travellers desirous of spending a few hours among the ruins must leave the up train on its arrival at Ayasouluk about 10.15, and be in time to catch the downward carriages at 1.40 in the afternoon.

The names of Her Majesty's ships "Caledonia," "Terrible," "Antelope," and "Swiftsure," to be seen painted roughly on the woodwork of the railway-station, are apt to suggest

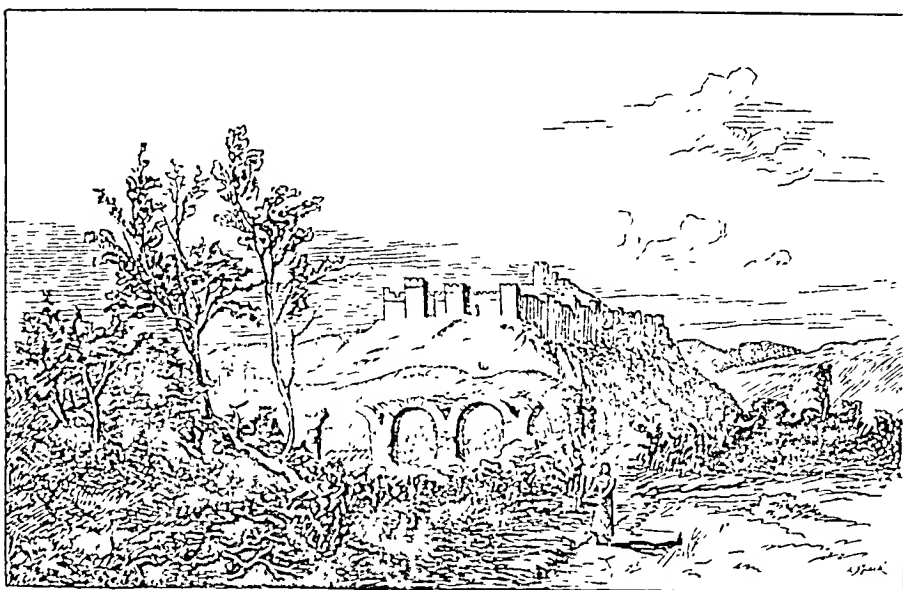


FIG. 44.—AYASOULUK (NEAR EPHESUS), 48 MILES FROM SMYRNA.

to the mind of the initiated antiquarian what an unexplored Golconda of ancient art lies buried, yet within reach, below. These vessels were sent by the British Government, in 1873 and 1877, to assist Mr. Woods, an architect, of Smyrna, in his excavations, and to convey to the British Museum any sculptures that might be obtained. Usually operations of this nature are better and more economically managed by private enterprise; nevertheless, the heavily-taxed Briton at home may be pardoned for thinking similar employment might with advantage be undertaken again by some of the

older specimens of our fleet at present lying useless at Portsmouth and other harbours, and by the interesting bands of naval officers one sometimes sees at watering-places, rusting for lack of something to do.

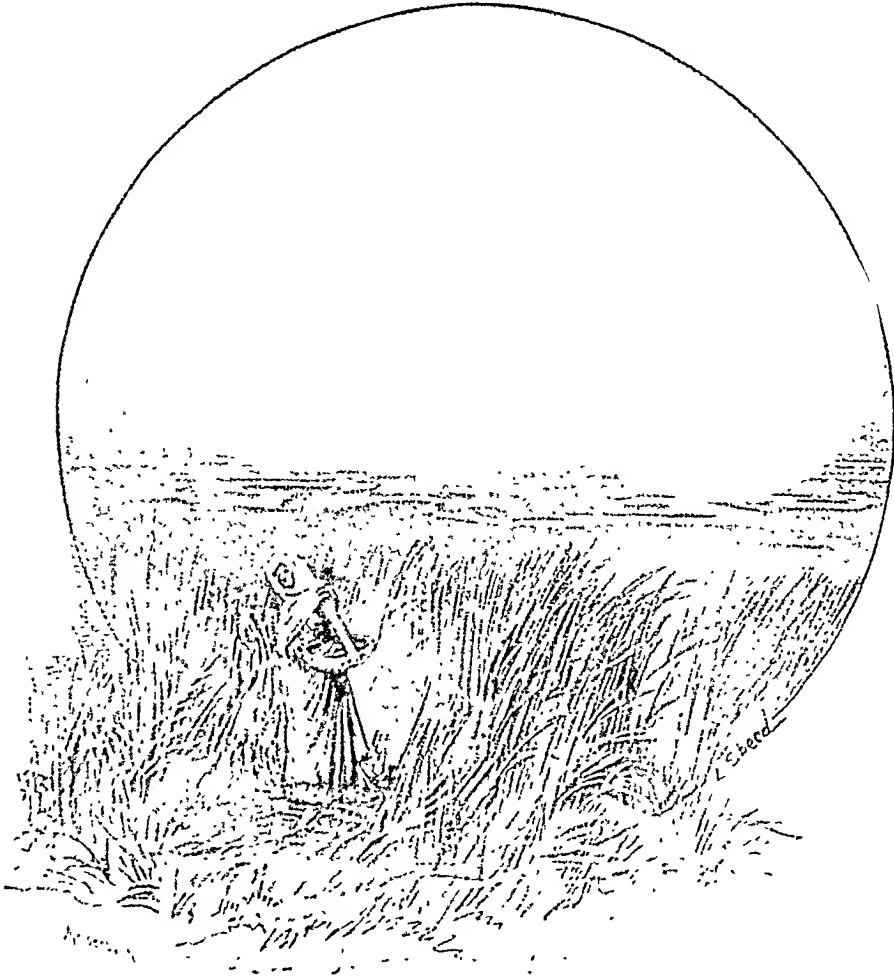


FIG. 45—MOUNT CADMUS, 6500 FEET.

(Windings of the river Meander. Miles of barley and poppy fields. Near Nashi, 108 miles from Smyrna.)

To most people the disappointment of having to pass the site of this famous city of antiquity so near, without seeing a trace of it, is almost too great to be borne ; and yet the feeling is mitigated the next minute by entrance upon a region of bloom and floral splendour, where beneficent Nature seems

to try by a lavish exhibition of colours, scents, and beauty in many forms, to make one forget for a time the scenes of spoliation just left behind. This is the commencement of the celebrated fig-growing country, which extends to and beyond Aïdin, a distance of over thirty miles. Another notable feature occurs about this point of the line in the great increase of the gradient to one in thirty-three, and the strange picturesque manner in which, like a gigantic snake, it winds upwards among the greenery of the limestone crags. As might be expected, even with two powerful locomotives attached, the train creeps rather slowly up such a steep incline, so that in the longer of the two tunnels presently passed through, the feeling of asphyxia becomes too pronounced to be pleasant. It is on the return journey, however, that the steepness of this part of the line is most apparent—when the carriage-wheels are each provided with an iron shoe, like the skids used for waggons at home, and the whole train, once pushed over the edge of the declivity, slides to the bottom by its own impetus, a distance of about eight miles.

Out of the tunnels, and beyond the deep cuttings which lead to them, the eye immediately roams over miles of fig orchards, planted with as much regularity, and kept generally as free from weeds as an acre of apple-trees at home. Here and there among the more sombre figs are pomegranates in magnificent bloom, looking at a little distance like immense azelias or camelias scattered over forests of dwarf oaks. At and near the next stations, Azizieh, fifty-three and a half miles, and Balachik, sixty-one and three-quarter miles distant from the starting-point, the same horticultural munificence appears, with the addition of immense fields of barley among the windings of the river Mæander, the quality of which is celebrated in many a foreign market (Fig. 45).

At the latter station the ruins of Magnesia, under the shadow of Mount Thorax, attract the eye, and the interest in viewing those ancient walls is not diminished when it is

recollected that their reflection is received in the lazy waters of the classic Lethæus. All around this district are well-cultivated gardens and orchards, interspersed with fields of white poppies grown for the preparation of sleepy opium; and the observant traveller, on witnessing these expanses covered with this beautiful syren, has no difficulty in understanding why the adjoining river acquired the character of the "Stream of Forgetfulness," if the poppy in ancient times grew as profusely on its banks, and the attributes of its deadly gum were as well-known as now. This ancient city is generally associated with the name of the distinguished Athenian general Themistocles, who, when banished from Greece by his ungrateful countrymen, spent part of his exile there under the protection and kindly treatment of the Persian monarch Artaxerxes. Ancient writers differ as to the mode of his death, which occurred at Magnesia 449 years B.C.

The surrounding country, apart from its attractive floral brilliancy, offers another feature of interest to the traveller, as having been the site of the great battle fought between the Romans and Syrians 187 years prior to the Christian era. In this struggle, historians assure us, the former, with less than 30,000 men, defeated 70,000 foot and 12,000 horse belonging to the latter, with a loss to themselves of only 300 infantry and 25 cavalry.

Aïdin, or Guzel-Hissar, the most important station, commercially, on the line, is situated on the side of an olive-covered hill, and is $80\frac{3}{4}$ miles from Smyrna. Its situation is very fine, and many a picturesque nook may be found by the artist among the winding lanes of the two-storey houses inhabited by its 80,000 industrious population. Formerly this was the country terminus of the railway, and all journeys beyond had to be undertaken on the backs of animals; but some time ago the line was extended to Seraikeuy, about sixty miles farther; and an application has lately been made to the Porte for a firman to continue it onwards for a similar distance, in order to tap a

flourishing district at present sending most of its products to market by sea. The ancient name of this stirring commercial focus was Tralles ; but the old town stood upon a bold, lofty plateau, considerably higher than modern Aïdin. Some of the majestic ruins are left, although most of the stone of the former palaces has been absorbed for building purposes of a more humble and utilitarian nature. It is somewhat remarkable that, while many other ancient cities of Asia Minor, far more notable in their day, have totally disappeared, Aïdin should have survived, not as a mere wreck, but as the flourishing centre of an extensive trade. True, the Gospel reached Tralles at an early period, as we know from the extant epistle of Ignatius to the Tralleans, dated about the year of our Lord 107 ; but for centuries the population has been, and is at present, mostly under the cloud of Islamism.

Aïdin is annually becoming more conspicuous as a convenient entrepôt both for native and foreign products, sending to Smyrna large quantities of figs, cotton, beans, sessam seed and oil, barley and other grain, besides liquorice, drugs, and opium, and receiving and distributing in exchange the varied manufactures of Europe. The Germans are endeavouring to gain a commercial footing in this flourishing town ; and they deserve success, as their hawkers are to be seen everywhere, while their manufacturers study carefully the peculiar wants of the people. At the same time a preference seems to be given to British-made articles on account of their greater durability, and it is a pity that more attention is not paid to this rapidly-growing market, distant though it be, by all classes of manufacturers at home.

Although the special fruit districts of the vilayet are supposed to be passed when the traveller leaves Aïdin behind, the character of the soil for fertility and producing the finest figs for exportation seems in no whit abated at Omurlu and Kiosk, respectively seven and twelve miles further on. Indeed, the whole face of the

country here is evidently volcanic and well suited for the fig, the olive, and the vine; accordingly, vast quantities of the fruits of these trees, of first-class quality, are annually produced.

About this point the railway crosses the river Mæander, and its strange convolutions in the middle distance are seen to advantage (Fig. 45). Its curious windings far exceed in eccentricity those of the Forth at Stirling, and have long ago had the honour of giving a most expressive word to our language. This celebrated river is stated by classical writers to have taken its rise in a great hunting park belonging to Cyrus the younger, near Celænæ, a city of Phrygia, where the Persian monarch kept a variety of wild beasts for the chase. The stream flows through Caria and Ionia, and after absorbing the waters of the Marsyas, Lycus, Eudon, Lethæus, and some brooks, and forming about six hundred convolutions in its course, debouches between Miletus and Priene in the Ægean Sea.

Of the same character as the country around the last two stations is that of the next, Chifte Kiosk, 96 miles from Smyrna; but the products receive the important addition of valonia, the acorn-cup of the *Quercus Ægilops*, an astringent used in tanning and dyeing. In ancient times this town was known, according to Arundell and other writers, as Antioch in Caria; and within sight of it, only three miles further on, is Sultan Hissar, formerly known as Nissa, the birth-place of the wonderfully accurate classical geographer Strabo. Atche and Nazli, although wild and rugged as to the cultivated surface, and picturesque as to their fantastically split rocks, get the character of yielding fruit and opium as copiously as seemingly better situated places; while in the lovely valley of Kuyujak, 116½ miles from Smyrna, no one is surprised to see the mighty olive in its full splendour of grey foliage waving amidst an ocean of yellow barley.

At Horsunlee, 123½ miles along the line, the fruit region appears to be left finally in rear, while barley everywhere

reigns as lord of the soil. Magnificent glimpses are also obtained of the adjoining mountain scenery, crowned by the bare, sharply-defined Cadmus, 6500 feet in height (Fig. 45), whose bald summit retains the snows of winter in its wrinkles half-way through the month of May. About nine miles of a run takes the tourist to the last station on this interesting line, where tickets are collected; and on the completion of his railway journey from Smyrna, arrives at the Turkish village of Seraikeny, it may be, hot, thirsty, dusty, and hungry, yet thoroughly gratified with his beautiful and picturesque tour.

It is disappointing to the commercial wanderer, who takes an interest in the rapid spread of the use of modern agricultural machinery, to find so little employed along this route. The vast breadths of absolutely flat country are admirably adapted for the performances of reaping machines; and yet the only mechanical implements seen were at one place where a traction-engine was at work in a farm-yard, and one or two reapers drawn by very small horses, ponies indeed, were laying low some fields of barley. Prejudice is still against them, as a laughable experience related in Chapter XXVII., connected with a scene in the neighbourhood of Philadelphia, will show.

The reader, having thus been introduced to a little frequented nook of Asia Minor, will naturally inquire what prospects he has of passing the night comfortably, should he ever get there. For the present the answer must be that, while there are plenty of Turkish houses, no accommodation in the European sense is obtainable. Persons accustomed to roam about in remote regions, and to "rough it," will doubtless smile at the idea of the terminus of a great railway, comprising a considerable village, offering no quarters to the visitor; yet such is the case. The railway authorities, however, have a little private caravansary arranged for the use of their own people, when sent for a night or two to Seraikeny; and in this very comfortable house, presided over by an active and intelligent Greek landlady, a traveller

or two may find rest and entertainment by previously applying at the proper quarter, should the rooms happen to be vacant. Such was the experience of the writer and three companions during the smiling month of May, 1885, but how they fared and what they saw will be reserved for the next chapter.

CHAPTER XVIII.

HIERAPOLIS AND LAODICEA.

THE village of Seraikeuy is distant one hundred and forty-three and a half miles from Smyrna, and is in the same county or vilayet over which His Excellency Hadji Nachid Pasha* lately held sway. It is a picturesque village, and ere we had been more than an hour or two in it, proved to be quite abreast of the age, as one of the party, requiring to send a message to a friend further in the interior, found a telegraph office at the official residence of the Mudir or chief officer, and so relieved his mind by instantaneously flashing his wishes over the line. Health and good looks seemed also characteristics of the place, if one might judge by the robust forms and attractive faces of the people, and the liveliness of the children, united to the favourable report of the station-master. The Rev. V. S. Arundell, who visited this village in 1826, mentioned in his book (p. 74), describing the sites of the seven churches in Asia, that he thought "from its situation, almost in a morass, Seraikeuy must be, during the autumn, if not at all seasons, extremely unhealthy." Matters, however, must have improved, since the learned chaplain to the British Embassy of that period at Smyrna wrote, as nothing in the least resembling a morass could on the present occasion be detected anywhere near. The village, indeed, seemed very well drained, and the neighbourhood gets the character of possessing an exceedingly dry climate, the rainfall averaging only twenty-five inches per annum.

Quarters had been obtained, as already indicated, at a

* *Vide* footnote, p. 85.

house belonging to the railway company; and the reader may feel interested to learn how we were fed for the night, seeing that no notice had been sent, and as travellers in remote corners of the earth know that it is one thing to obtain shelter beneath a comparatively comfortable roof, but quite another consideration to get the cravings of nature duly satisfied. On this occasion the supper pre-



FIG. 46.—A TURKISH DRAGOMAN AND GUARD.

sented by the Greek landlady was appetising, consisting of minced lamb stewed with artichokes and flavoured with the squeezings of unripe grapes. Lamb chops and green pease followed, succeeded by rice boiled in rich sweetened cream obtained from goat's milk, the substantial part of the repast being crowned with a dish of *yaourt*, the sour curd of the country, eaten with pounded sugar. Ripe and dried fruits, indigenous to the soil, brought up the rear, and

terminated a refreshment which, as regards both quality and cheapness, would have reflected credit equally on the best hôtel, and the humblest restaurant of Europe.

Our arrangements for the morrow having been completed previously to and during supper, and a decision come to of visiting the ruins of Hierapolis and Laodicea, we retired to bed at an early hour to obtain what sleep or rest we could.

The house and bed-rooms proving exceptionally clean, there occurred no disturbance from the pest of the East, nocturnal insects—not the hum of a solitary mosquito even fell upon the ear; but the heat was great, notwithstanding

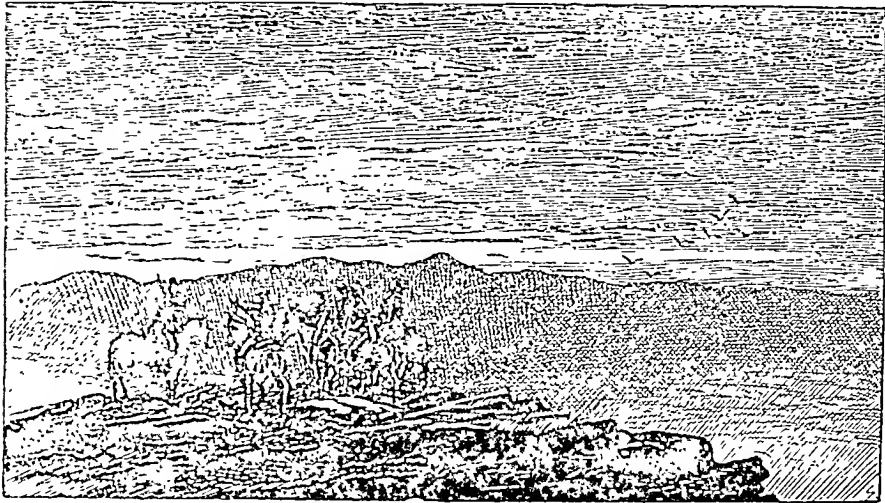


FIG. 47.—OUR PARTY RIDING FORTH BEFORE DAWN.

the open windows, and the dawn was heralded long ere it arrived by the crowing of seemingly myriads of cocks and a chorus of apparently countless donkeys—the carriers of the village—which rendered sleep after half-past three impossible. Accordingly, we all indulged in early rising; and, after a substantial breakfast, we four companions, preceded by an armed mounted guard bristling all over with weapons, in appearance somewhat like the sketch (Fig. 46), and followed by a similarly accoutred man-of-war in charge of our provisions and drinking water, settled in our saddles, and before five o'clock were fairly on our way. In this

order we left the hospitable caravansary, marching with comparatively silent footsteps through the deep floury dust of the sleeping village. The heat and closeness of the past night had evidently been felt by others besides ourselves, as many of the villagers still snored in the open air, and from the flat roofs of the mud huts on its outskirts the heads of drowsy Turks were occasionally raised with a look of pitying inquiry, as the cavalcade, enveloped in a cloud, passed away into the hazy distance. For some time the route lay due east, but as we got into the intricacies of the vast level expanse, of probably fifteen miles in breadth, the tortuousness of the path soon defied any attempt at keeping an accurate compass-reckoning. With the break of dawn, however, the grey terraces of Hierapolis became faintly visible at the base of the distant mountains (Fig. 47), rendering further study of the compass unnecessary, as the ghostly remains continued fully in view until we reached them about three hours afterwards. Hitherto the flat monotony of the plain, seen in the dull light of dawn, afforded little food to our interrogating eyes; but when the sun had fairly surmounted the horizon, although the site of the ancient city lay in shadow, the rugged pinnacle of Mount Cadmus (Fig. 45), opposite gleamed forth wild and majestic, and gave a certain sense of imaginary coolness by his weird features draped with ribbons of snow. By-and-by the whole range blushed under the caress of the herald of day, and the great peak, and bare, treeless glens descending from it, seemed for the moment instinct with a kind of strange volcanic life.

During a ride of this kind the equestrian must be prepared to do rough work should it offer, and to shirk no obstacles when they appear. True, on the present excursion there proved to be no desperate jumps or very dangerous places to scramble over, yet there was all the excitement of small risks in the crossing of frail, loosely-planked bridges, fording muddy streams of unknown depth, and groping through sullen marshes, full, it might be, of hidden treachery.

At length, after splashing through our last considerable stream, the river Lycus, a tributary of the Mæander, getting clear of the great central morass, and passing through some miles of ripe barley, we arrived at a number of rude clay huts, the owners of which were busy turning over the soil. This proved to be a colony of Bulgarians (Fig. 48), who had left their native country during the last struggle between Russia and Turkey, preferring the freedom of this vast hot plain to the intolerable military slavery of the Czar. The men seemed a fine-looking race, and were possessed of fire-arms, and strong, useful implements of agriculture. Some of them were ploughing, each with six yoke of sturdy oxen harnessed to a curious wheel-plough, strongly resembling at a little distance a piece of heavy artillery. Doubtless they will quickly improve the land upon which they have settled, so that the aggressive Russian, without intending it, has in this instance done good to Turkey by driving into the uncultivated plains of Asia Minor nearly 200,000 of such men to reclaim the hitherto useless expanse.

Meanwhile the vast level had at length been crossed, and the path lay upwards over a gentle ascent of smooth, hot limestone, with here and there a flimsy covering of stunted, dried-up weeds, and the heat, as may be imagined, resembled that from the open door of a furnace. The sun's glare and fervour, indeed, were rendered endurable only through the intervention of our helmets or muslin-covered hats, white umbrellas, and having no walking to do.

Some enthusiastic persons who have visited Hierapolis (Fig. 49) have recorded that they were almost struck dumb with astonishment at the wondrous sight. They have described its splendours, transcending, they say, all the other ruins of Asia Minor. The completeness of the buildings, the glitter of the marble palaces, the dazzling purity of the magnificent terraces, and their grand cascades of petrifying water, have all been limned by travellers in the most alluring words and colours. Alas for the frailty of the human imagination where the sketch is not made on

the spot! Alas, also, for the vigour of the earthquakes which have so often visited this region, as the sadly-blighted reality in no sense answers to the attractive portrayals alluded to. The buildings, with a few exceptions, are mere



FIG. 48.—BULGARIAN FARMER AND BOY.

unsightly fragments or mounds of *débris*; those that are less shattered than the rest have been robbed of every trace of their marble coverings; and the purity of the incrustated terraces, excepting the spots where the water is actually

flowing over them, is disappointingly dulled by the effects of time and weather. Allowing that Hierapolis a few centuries ago may have been all that enthusiastic travellers have depicted, it has long since been degraded into a common quarry for the lime-burner and builder, following the Goth who has stolen its sculptures, besides mutilating what he failed to carry away; and the fissuring of the ground by earthquakes in recent times has completed the sad scene of decay and ruin. There is no doubt still a vast quantity of marble lying about, but it is mostly in the form of worthless chips—sure traces of the spoiler—fragments of pilasters and broken sections of columns, with scarcely any carvings except a few maimed and worthless specimens lying on or half-buried in the heaps of rubbish with which the whole area is strewn. Below the surface, probably, there may be numerous treasures of art, and any enterprising syndicate purchasing the site from the Porte, with the exclusive power to dig and remove—which I understand can be obtained for a mere song—would likely reap a speedy harvest of ancient art of priceless value, besides other old-world objects of worth.

After three hours' riding our party arrived at the commencement of the ruins by the western approach, the same as that chosen by Arundell in 1826, and opposite to that described by Hamilton in 1842. Crossing the dry bed of a stream, we mounted a steep hill and gained the filled-up channel of a former conduit from the central hot spring. This channel being perfectly level and almost as hard as marble, afforded a good road for the horses, and brought us by a series of windings among rifled tombs and violated sarcophagi to the margin of what may be called the solid marble lake. Before quite reaching this level, the view of the great plateau, seemingly carved out of the side of the Messogis mountains, on which the ruins stand, was most impressive. The plateau is an immense crescent, the horns of which are some miles asunder, having in front of it a correspondingly vast projecting terrace entirely

crusted over with successive deposits of carbonate and other combinations of lime. In former days there had evidently been numerous calcareous streams pouring over the cliff, which is about 300 feet high, at numerous points, thus producing a degree of regularity in the appearance of the coating. On the present occasion only four cascades were visible, and at these points the terrace certainly maintained its ancient claim to be white as the purest marble; and from the subterranean noises heard, it is probable that the volume of water discharged by the spring is not materially less than formerly, but is only hidden from view. In their state of original purity these immense incrustations must have been most wonderful objects to contemplate; but, soiled as they are now by weather and time, they rather suggest to the practical traveller the idea of the refuse heaps shot over the steep bank of a river from an extensive chemical work.

Fortunately all travellers are not practical, that is to say, wholly utilitarian in their ideas. If we may have remarked to each other on our way up the side of the terraces, what a pity it was that such a magnificent expanse of lime carbonate and sulphate, not to mention the millions upon millions of tons of phosphates lying there ready for removal by any spirited merchant, manufacturer, or agriculturist, should not be utilised, that notion speedily gave place to a feeling of awe as we looked down from above, over a seemingly once vast boiling Jordan, suddenly petrified and fixed for ever, as it were, by the fiat of Omnipotence. Curious looking as this singular incrustation is when viewed from the plain, its aspect does not captivate the imagination in the same degree as when the traveller stands upon its upper level and gazes downwards over the undulating slopes. These are diversified by immense numbers of little troughs or basins, with ledges forming shallow pools about a yard in diameter, sometimes hanging with stalactites of the most dazzling brilliancy, where the petrifying streams are still running. Sometimes these pools are of considerable size, and appear as if they had been planned and constructed by

human hands for bathing purposes. As to the conduits, many of which are now filled up to the brim with solid marble, and form admirable level foot-paths, there can be no doubt that they were contrived by engineers of the period to distribute the hot water from the great central fountain to the various baths, of which an effeminate and voluptuous people like the ancient Phrygians were excessively fond.

Dismounting near the Hot Pool, the source of the petrifying water, we visited the various remains on foot. The theatre is said to be one of the most perfect in Asia Minor, and underneath it Cockerell is represented as having discovered the plutonium, or mephitic cavern. In its present condition, and without the aid of a dozen stalwart labourers with crowbars and tackle, it would be difficult to identify anything, as the lower part of the interior is full of heavy stones and shattered fragments. In this fine old building the hand of the Goth had evidently been at his sorry work within the last few days, as the front of the stone seats, almost from the bottom to the top, were littered with fresh cleavings of white marble, and several blocks lay at one side newly dressed and ready for removal. Against one of the outer arches lay a portion of a beautifully-sculptured white marble frieze with four human figures and a leopard, also the well-known "egg-and-dart" ornament bordering the upper side. It represented a Bacchanalian procession, but was much and recently mutilated, particularly the faces and hands. How we four travellers would have enjoyed catching the Vandals and punching their heads, as this was the only carved fragment of pure art we could see over the whole vast area. In 1826 Arundell "saw several fragments of good sculpture, principally female figures, one in a chariot, lying amidst the heaps within the proscenium." The heaps of *débris* are still there, but the damsel in the chariot will be sought for in vain.

From the interior of the theatre, which is some height above the level of the marble lakes and hot pool, the view is very comprehensive. This ancient building fronts

towards the south-west, and overlooks the remains of the gymnasium near the upper edge of the terraces. The direction of these is from south-east to north-west, measuring over a mile, the greater part, especially the two ends, being thickly crusted over with calcareous deposits. On the upper surface, where not occupied by the solid marble lakes, the area, back to the slopes of the Messogis mountains, and partly up their lower sides, is entirely covered with ruins. Grand piles of massive arches and the relics of an extensive colonnade remain; but every feature is in a state of utter decay, which any one can see at a glance has not been wholly the work of earthquakes. The colonnade must have at one period been an object of great magnificence, as the bases of the columns can still be examined in their original position, extending for fully two hundred yards; and in the vicinity appear the fragments of another extensive building, nearly eighty yards in length. Indeed the opinion among the well-informed antiquarians of Smyrna seems to be that, since classical times, no change in the level of the upper terrace, or of the surface of the hot pool, has occurred; consequently, the columns *in situ* and the various fragments of walls and arches on the same plain, or higher, still stand exactly as they were originally placed. But with the buildings reared on a lower level a change has happened which conveys to the eye the idea that they have sunk. Part of the gymnasium, for example, is obscured and hidden by the marble deposit; and this is accounted for, as Hamilton (1842) and other travellers think with good reason, by successive overflows of the lime-saturated water, no longer kept within prescribed channels, spreading itself over and around every object met during its course, and as it receded from the hot pool from whence it issued and became cooled would surrender its solid constituents. In this way part of the foundations and area of the gymnasium have been, so to speak, silted up; and seeing that the hot fountain has had many centuries in which to perform the

work of incrustation; that it has already filled up two immense hollow meadows to the brim, forming the solid marble lakes already mentioned; and has covered more than a mile of terraces three hundred feet high, the probability is that many magnificent buildings standing on the lower slopes may also have been completely smothered. The result, doubtless, has also been owing in some degree to earthquakes disarranging the system of conduits, or perhaps causing fresh openings in the earth, and so giving liberty at different periods to overwhelming floods of petrifying water.* This surmise is rendered highly probable from the fact that the region is known to have frequently suffered from volcanic convulsions, and at the present time the surface of the soil in the neighbourhood of the hot pool is very much rent and fissured.

Fortunately for the tired and gasping tourist, who has been wandering all over this scene of desolation under a scorching sun, the walls of the gymnasium are too high ever to be much more encroached upon by the invading water; consequently, he can always calculate on a shaded spot whercon to set and open his luncheon basket. Possibly, however, he may find society there more numerous than select, in the shape of a tribe of Turkoman nomads with their flocks and herds, who have likewise come for an hour's shelter from the fervent heat. Such people offer for sale scraps of worthless potsherds they say they have picked up among the *débris*, and are always ready to help the tourist to finish his meal. They are said not to be dangerous, although they are armed; but as they are certainly unsavoury, and become picturesque in proportion to the distance they are off, the traveller will be well advised to give them no encouragement.

* Since the substance of this chapter appeared in the *Glasgow Herald*, on the 15th of August, 1885, I have been gravely told that the petrifying power does not exist in the waters of the hot pool at all, but in an ice-cold spring adjoining. I did not see this latter phenomenon when on the spot; the guide, indeed, said nothing about it; so, until further proof is forthcoming, I prefer to allow the text to remain as it is.

Suppose, on the other hand, that solitude reigns, and that one's luncheon is eaten uninterrupted by the posterity of Ishmael, the first desire experienced afterwards will be to plunge into the pool. The water is not too hot for a dip, only about 85 degrees or so, and is pellucid and inviting. Besides, there are clumps of fragrant oleanders and blossoming pomegranate-trees nodding over the surface, to undress and dress by, which seem to beckon the swimmer into the luxurious bath. I might have been tempted but for the recollection of a mishap under slightly similar circumstances many years before; however, our two Turks plunged in with bare heads under a cloudless sun, the atmospheric temperature being at about 110 degrees; and enjoyed their hot swim, coming out none the worse.

It would be simply a monotonous repetition to proceed any further in the description of the rest of the ruins, the ponderous gymnasium, the temples, minor theatres, music halls, and colonnades. To call them splendid or picturesque, or to use any other laudatory adjective in referring to them, would only be to exaggerate, to perpetuate a delusion, and be accessory to a snare; at the same time, the Turkish Government cannot be absolved from blame for permitting the wholesale thefts and vandalisms, which have so materially damaged and degraded those doubtless once magnificent but now desolate remains.

From the large quantity of marble fragments everywhere strewn over the surface it seemed evident that this valuable and beautiful material had entered liberally, at least into the decorative features of Hierapolis. Now, all the splendid friezes are gone; not a carved panel, capital, or base is to be seen; nothing is left except the mutilated fragment already referred to, and a vast desert of marble columns in pieces, and a wilderness of chips.

After luncheon and a long rest we again started on our tour, and riding north-north-west over another solid marble lake, dismounted and led our horses down the steep face of the incrustated terrace, a height of about 300 feet. Reaching

the plain we moved as rapidly as the intense heat would allow during two and a half hours over a fairly well-cultivated, although uninteresting, country, to the site of the Apocalyptic Laodicea. The approach lay around the base and partly up a rather steep hill thickly strewn with violated sarcophagi, their broken lids, and fragments of tablets bearing ancient Greek inscriptions. These ponderous coffins and carvings were tumbled about in utter confusion, as if hurled from the summit by malevolent giants; and

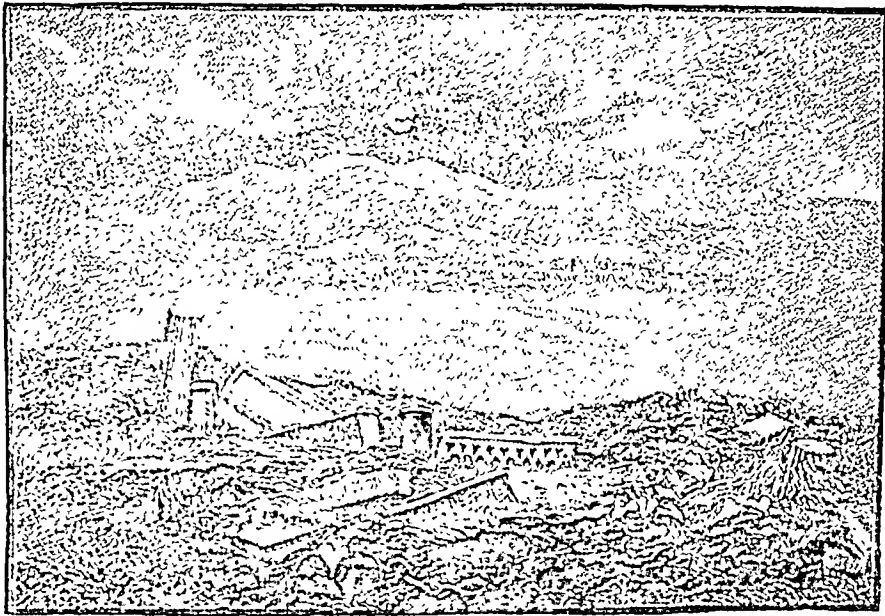


FIG. 49.—HIERAPOLIS FROM RUINS OF GYMNASIUM, LAODICEA.

the area of their fall was clothed with a fine crop of ripe barley, scattered among which appeared a joyous and loquacious band of Turkish reapers cutting it down. Occupying, as it once did, seven considerable hills, the old city in its prime must have been of great extent, yet the remains now visible are utterly disappointing. The remnants of the theatres, circus, and aqueduct still cover a large space; while the gymnasium (Fig. 49), a small building once constructed of massive blocks, occupies the summit of the highest hill, but the latter had been shaken

and shattered to pieces by earthquakes. Although the site and part of the neighbourhood were smiling with ripe grain, and many a merry laugh rang through the air, and although it afforded a vivid contrast to the petrified desert under the Messogis we had recently left, it wore such an unreal, weird, volcanic look, that we felt no hesitation or regret in turning our backs upon its rent and tottering relics, and getting clear of its reported pestilential caverns. We knew that one of its significant names, Trimetaria Cum-bustia, had been bestowed on account of its situation at the converging points of three provinces, and owing to its frequent subjection to the sudden fury of subterranean fires.

As we rode away we seemed to sniff sulphur in the breeze; we caught ourselves listening at the holes in the side of the hill for the growl of the earthquake or the hiss of molten lava, and the reflection occurred, how terribly this spot had suffered since the days of the strange threat—than which nothing could be more expressive of unmitigated disgust, “I will spue thee out of my mouth.”

At the same time it must be confessed that there is no comparison between the two sides of the valley for fertility. Whatever may have been the aspect of Hierapolis in the days of its grandeur, it has little to recommend it now; whereas the land around Laodicea is as fruitful as ever, although the great city has almost disappeared. The latter stands near the river Lycus; and it received its name from Laodice, Queen of Antochus Theos, who rebuilt it out of the ruins and on the site of the older town Diospolis. Among the ancient inhabitants both the arts and sciences flourished, and for many years it was the seat of a celebrated medical school. Besides these merits, it had long been celebrated for its commercial activity as London is at the present time, and, like the British capital, it appears to have possessed in the year 361 a kind of Jerusalem Chamber, where the canon of the New Testament was finally settled. It was great when Augustus Cæsar ruled; Hiero, Zeno, Polemo, and successive Roman emperors added to its

magnificence; but all proved of no avail to save it from the dread fiat. The people, like their church, were "neither cold nor hot;" probably they were a set of worthless sensualists. History informs us that their city was ruined by successive earthquakes, and passed into the possession of the Turks in the year 1097. It was wrested from them in 1120, when it was rebuilt and fortified, but only to be retaken in 1161. Once more it became free, and Frederick Barbarossa, who had been kindly received by the Laodiceans in 1190, prayed for its prosperity; yet the Turks, six years thereafter, again became its masters. In 1255 the Sultan presented it to the Greeks; but that nation being unable to defend and hold it, Laodicea finally reverted to crescent rule, and has remained Turkish ever since.

On the way down hill the party stopped at a half-buried slab of marble, which had been noted when ascending from Hierapolis. It seemed to bear an inscription upon its face; so, with some trouble, we cleared away the earth, stones and moss sufficiently to obtain a rubbing of the few un mutilated words, when it turned out, greatly to our satisfaction, that these were ancient Greek of the period when the city was in the acme of its splendour, and among them, as perfect as the day it was chiselled, was the name *Laouthike*, the ancient spelling of Laodicea.

The ride back to the village of *Seraikeuy* lay over a fairly good road, but quite uninteresting and deep with dust. The afternoon and evening continued excessively hot, and as the journey occupied nearly four hours, nine o'clock had chimed ere we again reached the shelter of the railway caravansary.

CHAPTER XIX.

THE BOURNABAT SILK HARVEST OF 1885.

IN former chapters the preliminary measures which preceded the commencement of the 1885 silk season at Bournabat were detailed. The harvest of cocoons having been completed, under circumstances of unprecedented success, the readers of the earlier essays of this series will probably feel interested in learning what led to such a satisfactory result. It can scarcely be forgotten that during most of the past forty years silkworms all over the world had been the victims of a succession of maladies. The effect of those diseases was to gradually curtail the annual crop of silk available for international commerce, until a point was reached when the silk industry of the world was threatened with extinction. Previously to the disaster reaching such a point of acuteness, Italian savants had endeavoured, by researches and suggestions, to save the trade from collapse, but with little practical result. Pasteur afterwards, at the wish of the late Emperor of France, took the difficult matter in hand; and to the discoveries and recommendations of that eminent physiologist and chemist, all sericulturists owe the great change for the better, which has lately occurred.

Among the extensive silk-producing countries of former days, which suffered most from silkworm diseases, was Asia Minor; and of the districts of that great and fertile region, none had greater cause for complaint than that in which the town of Smyrna, with its cluster of pretty villages, is situated. About thirty-five years ago a formerly robust trade became

enfeebled through the rapid spread of all the known maladies. First the silk-farmers, then the peasantry, lost heart on finding that year after year their increasing "educations" produced less and less silk. They ceased to purchase eggs from the dealers, who had so often deceived them; the annual crop of cocoons in consequence dwindled to zero; the silk-mills of Smyrna had to be closed for lack of the raw material; the artisans formerly engaged there betook themselves to other employments; the peasantry mourned, but could not resuscitate, a most remunerative source of income hitherto reaching them at a period of the year when other work was scarce; an important and easily-collected item of revenue failed the authorities; and on Turkish bondholders in Great Britain and elsewhere the brunt of the misfortune ultimately fell.

Mr. Griffitt, of Bournabat, for thirty-three years the Vice-Consul for the United States at Smyrna, although an English gentleman and a British subject, had long been an experimental sericulturist, and saw at a glance the exceeding value of Pasteur's discoveries. He studied his writings, followed up his researches, and, being himself a skilled silk-farmer, invented methods of his own which, during the past few years, have led to, and culminated in, this season's unexampled prosperity.

The distribution of the previous year's eggs, by Mr. Griffitt, in the Bournabat and other districts, took place during the spring of 1885, from the middle to the end of March, as depicted in a former chapter; and in most cases incubation occurred in the early weeks of April. The terms upon which the *graine* was supplied varied according to the situation of the town or village of the proposing educators, and had some reference to whatever customs prevailed in former days, before the blight had fallen. Those living near Mr. Griffitt's residence, on account of causing no outlay and requiring no separate agency, were most favourably dealt with; while those residing some miles off, or in some distant town or village, were required to contribute at the end of the season a

larger percentage of their crop; but the eggs in every instance were given free of expense, the educators supplying all food and labour. The arrangement was, in short, a partnership one, managed in each outside village by means of an agent, experience having taught that this plan is open, in honest hands, to fewest objections.

To the process of sericulture, as comprised within the bounds of a single incubation of eggs, the technical name of an "education" is given. The average period over which a first education for *graine* extends in Asia Minor, using little artificial heat, is sixty-two days, as follows:—

Time consumed during incubation, feeding, moulting, and beginning to spin	40 days
Time occupied in weaving the cocoon	3 "
Time allowed for laggards, an additional	2 "
Time required for transformations in the cocoon	15 "
Time usually spent in pairing and depositing eggs	2 "
Total	62 days.

When the education is for silk alone, its duration may be lessened by employing a greater degree of heat than is desirable in the production of eggs; a second hatching during the season is shorter for the same reason, but it is never so satisfactory as the first; and the prolonged leaf-plucking which a double harvest involves is injurious to the mulberry tree.

Not one of the least curious features connected with Mr. Griffitt's silk harvest during the season under review was his breeds of silkworms, each of which furnishes a physiological study in miniature. His beautiful white Bagdad worms, the largest hitherto produced in Asia, were obtained some years ago from the banks of the Euphrates, near the ancient city whose name they bear. When this fine breed was first received, it was found to be full of the corpuscular malady, and all idea of raising stock from it was abandoned. Subsequently the verdict was reversed, and a trial determined upon after Pasteur's cellular method. About half an ounce of eggs was treated on this costly, yet efficient plan,

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with a yield of seven thousand moths of both sexes; but of this number only two hundred were afterwards passed by the microscope as comparatively free from the disease. The progeny of these were again reared cellularly, resulting in the small number of only forty-two moths (Fig. 52) found absolutely healthy in every way. From this tiny but vigorous colony sprang the existing ample and comely race which, with further careful selection of only the finest for reproduction, bids fair to supersede all others where silk of the greatest length and strength is required. Already the regeneration of the white Bagdad breed has excited the liveliest hopes among the fishermen of the Gulf of Smyrna and the Greek Archipelago, who formerly used its silk. These hardy "toilers of the sea" grudge no reasonable outlay upon their nets; they expect that the price of this silk will again enable them to use it; and in anticipation are invoking blessings upon the head of their benefactor.

The story of Mr. Griffitt's yellow race (Fig. 52) is hardly inferior in interest to that of the white Bagdads. About eight years ago, this gentleman received a small sample of indigenous yellow grain from an eminent and well-known sericulturist, M. Rolande, of Switzerland, for experimental purposes. The worms did fairly well the first year; the second season ended in disappointment; while the third proved an utter failure. Willing in this case, as in the other, to try the best-known remedial means, Mr. Griffitt put a few of the remaining eggs of the third year through a cellular education, which likewise proved a success. A numerous renovated race quickly appeared, and from them the fine breed of the past few years descended, and is now remuneratively reared in various parts of Asia Minor.

It would have been difficult for any scientific and enthusiastic sericulturist to examine for any length of time the magnificent cocoons produced by those two handsome members of the *bombyx mori* family, without believing that a

hybrid between them would display points of additional merit. The experiment has been tried; the silk produced proved of the finest quality; and an important gain has resulted in the augmented weight of the cross worm, the average of which is 3.91 grammes, as compared with 3.77 grammes, the average weight of its yellow mother.

In almost every hatching of hybrid eggs a freak of nature

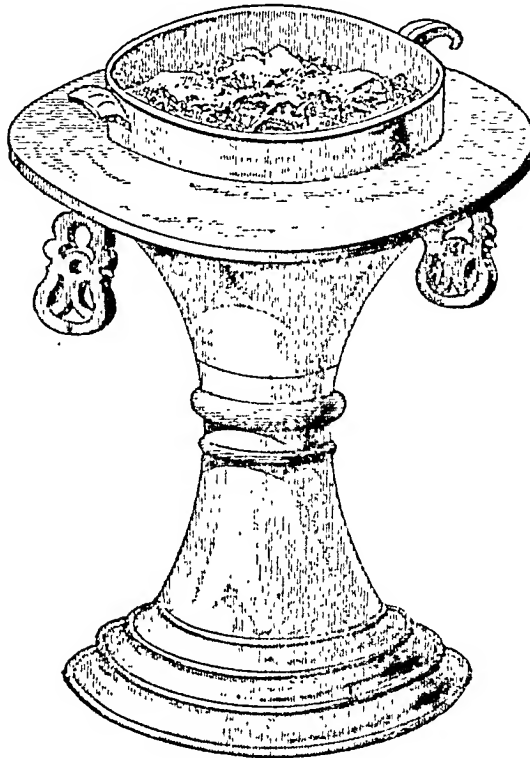


FIG. 50.—GREEK BRAZIER FOR HEATING ROOMS WITH GLOWING CHARCOAL.

appears in the shape of a few dark brown worms, locally known as “arapenes” (negroes) or “kalogrees” (nuns). They are exceedingly vigorous, and their average weight, 4.1 grammes, is considered high, accounted for by the long duration and voracity of their feeding. That they would form a profitable race to any farmer, reared in large numbers, will be seen when it is mentioned that the produce of eighty-two worms, picked out of an education of sixty thousand

mixed breeds, was only one imperfect cocoon, three double cocoons, and seventy-six nearly equally divided between



FIG. 51.—PICKING AND SHREDDING MULBERRY LEAVES FOR FIRST THREE AGES—BOURNABAT.

perfect male and female cocoons, their weight being 2·2 grammes for the males and 2·7 grammes for the females.

Brought together into a focus for the sake of comparison, the average weights of those worms, taken immediately before they mounted the brushwood to spin their cocoons, were—

The Bagdad white renovated race . . .	5.66 grammes.
The indigenous Swiss yellow race . . .	3.77 „
The white hybrid.	3.91 „
The brown freaks of nature	4.1 „

At the beginning of April a small hatching of one and a half ounces, or sixty thousand eggs, of the three first-mentioned races was set to incubate in two upper rooms of Mr. Griffitt's house, the special object being the securing of a quantity of healthy *graine* for the operations of 1886. With this end in view, the temperature was purposely kept moderate all through the education. Artificial heat, applied by means of pans of glowing charcoal (Fig. 50), was employed for a few days during the period before and after hatching, raising the temperature from 56 degrees Fahr. to, and keeping it at, 62 degrees.

In a short time this arrangement was rendered unnecessary, as the temperature required was obtained naturally by the increasing power of the sun; but the greatest height of the thermometer in the rooms at any period of the education rarely exceeded 80 degrees. In the course of eight or ten days all the eggs hatched, some yielding their worms before the eighth day, and the space occupied by the sixty thousand newly-born creatures was two square feet. During the early stages, beyond the careful selection of the leaves and shredding them (Fig. 51) finely before feeding, the time consumed in attending to the various requirements of the worms was comparatively small. But as they grew in size and voracity, the almost continuous labour during daylight of four persons was needed; while, towards the termination of the education, a man and donkey were employed morning and evening for several days, keeping up the failing local supply of mulberry leaves by loads brought from a distance.

Meanwhile the small farmers and peasantry of Bournabat

and in the surrounding villages of Mersanliqui, Narliqui, Koukloudjah, Diana's Bath, and more distant hamlets and towns, had also been progressing with their respective educations; and received occasional visits from Mr. Griffitt, or some of his servants, with the double purpose of giving the educators advice, and noting any appearance or symptoms of disease. In no instance could any trace of the malady be detected, and in every case where Mr. Griffitt's suggestions as to ventilation, space, and perfect cleanliness were strictly attended to, the worms bore a robust look, which augured well for the approaching harvest. As having an important bearing on the last remark, it may be mentioned that the rooms devoted to the incubation of the one and a half ounces of *graine*, already alluded to, measured: one, twenty-three feet by seventeen feet, provided with five windows and four doors, the stands inside affording 504 square feet of feeding space for the worms; and the other, eighteen feet by eighteen feet, with two windows, two doors, and possessing 432 square feet of feeding area. Altogether, the calico-covered surface occupied, when the education was finished and the worms were about to mount, was 936 square feet, in rooms the ceilings of which were twelve feet from the floors, each provided during the whole period with frequently changed basins of disinfecting fluid at the corners. When it is remembered that the space originally occupied by the newly-hatched worms was only two square feet forty days previously, it will be seen what stress is laid by a scientific educator upon giving his silkworms an abundance of accommodation, and it will be understood how the observance of this point, in addition to ample ventilation and strict cleanliness, is insisted upon by Mr. Griffitt from all to whom he entrusts his *graine*.

The revival of such an industry as sericulture, after so long a period of decay and almost death, has been attended with many difficulties, each peculiar to some particular year. The special perplexity of the past season had been the scarcity of mulberry leaves, as this was the first occasion

for more than thirty years that an overwhelming demand for food has occurred. An advance in the price of leaves was the result, which slightly curtailed the profits of the educators; but as more trees will hereafter be available for feeding purposes, this drawback may be expected annually to diminish. On the other hand, the abolition of disease, when the fact becomes known, will certainly increase the number of educators in future. It might therefore be judicious on the part of the Turkish authorities to make timely provision by planting a few millions of mulberry trees in the various silk districts, and making free gifts of seedlings to all who offer to put them in the ground themselves.

It rarely, if ever, happens that a family of silkworms commence and terminate their long feast exactly together. There are always a few sturdy pioneers that keep ahead all through the education, as there are invariably some laggards which saunter lazily behind the rest. When the pioneers show by certain well-understood signs that it is their pleasure to commence the spinning of their cocoons, the watchful sericulturist arranges his previously obtained and prepared supply of pine or other branches in such a manner that the worms may obtain easy access to them. Nestling, as Bournabat does, at the base of a range of scrub-covered hills, it is well situated for quickly obtaining such supplies. Accordingly, it was one of the picturesque, if not one of the most melodious experiences of the season when, morning after morning, all the asses of the village returned about dawn loaded with brushwood for the educators; the distant and gradually approaching chorus of braying, announcing unmistakably the arrival of the Jerusalem steeds, and putting further sleep out of the question. Quickly the loads of brushes were seized, torn asunder, dressed and placed in the frames ready for the expectant worms. Mounting quickly follows, and is nearly always performed in the morning. As soon as the worm has found a suitable spot, it begins immediately to evacuate its silk, to weave its cocoon, and before the day is over the

industrious little spinner is hidden from view in its silken cell. Making due allowance for pioneers and laggards, it may be said generally that, counting from the date of setting to hatch, the bulk of the cocoons of a first education ought to be completed on the forty-fifth day, after which those intended for immediate reeling are removed and unwound, experience having taught that the silk obtained from live cocoons is better in quality and greater in quantity than that yielded after the chrysalides have

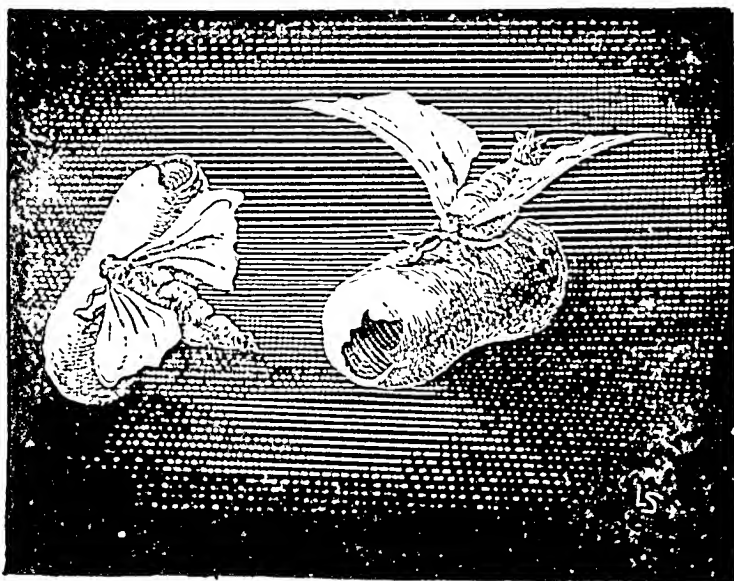


FIG. 52.—BAGDAD RACE. INDIGENOUS YELLOW RACE.
(Slightly reduced from the natural size.)

been killed. A day or two having elapsed, the remainder of the crop is removed from the brushes, cleared from floss and twigs, examined and assorted, the finest specimens only being strung (Fig. 29) in series of one hundred cocoons for reproduction; while the balance is steamed for a quarter of an hour in a suitable apparatus to destroy all life, dried, and stored away in airy places free from vermin, until required for reeling or exportation.

Fifteen days usually intervene between the completion of the cocoons and the issue of the perfect moths selected

for the perpetuation of their species. This is a period of considerable anxiety to the scientific sericulturist, as, although his crop of silk for the season is now assured, he remains still in ignorance regarding the presence or absence of disease in the female moths undergoing development. On these depends his supply of *graine* for the following year. Accordingly, he eagerly looks day by day for some sign or symptom on which to build his hopes. During this epoch of apprehension the services of the sturdy pioneer worms already mentioned come into play, and they perform an important function, which either calms his solicitude or puts him out of prolonged misery by confirming his worst fears. The pioneer worms, keeping up their character of marching in the van, have now become pioneer moths, the heralds of the army; these issue from their cocoons some days in advance of the others, perform their appointed duties, and resign their bodies to microscopic examination. Thus the sericulturist on Pasteur's system is enabled to form an early opinion regarding the absence or presence of disease and its extent, and to act at once upon the hints so obtained.

The reader will scarcely feel surprised now to learn that the silk season of 1885 at Bournabat, and wherever Mr. Griffitt's *graine* was distributed last spring, was of the most satisfactory character. That gentleman's privately-conducted education of one and a half ounces yielded 60,000 worms, all of which arrived at maturity without exhibiting a trace of disease, and spun the extraordinary weight of 93 okes of cocoons, or 255 lb., equal to the unprecedented return of 170 lb. per ounce of eggs set to hatch. The average crop of the adjoining farmers and peasants, although not so great, having been 42 okes, or 115 lb., is still far ahead of recent returns from Europe. These figures, according to M. Maillot, Director of Sericulture at Montpellier for the French Government, are—from Italy 23 kilogrammes (62 lb.), and from France 28 kilogrammes (77 lb.) per ounce of eggs. If such returns are considered

good for the two great silk-farming countries of Europe, in what category are the magnificent crops of Mr. Griffitt and his friends to be placed ?

It only remains to be added that this season Mr. Griffitt had improved upon his former practice, by adding the stimulus of promised rewards to the most successful peasant educator in each town or village raising his *graine*. He thus anticipated a function which the authorities themselves might gracefully have undertaken. Under the circumstances it is evident that the educators of Asia Minor, as well as the Turkish Government, rest under the weight of a heavy obligation to this gentleman, which will not be easily discharged ; the first are his debtors, on account of his having revived a remunerative industry, and the second for the reanimation of a defunct source of revenue.

CHAPTER XX.

SMYRNA TO CONSTANTINOPLE.

THE opportunities of getting from Smyrna to the Black Sea are numerous, and the trip is so interesting that no traveller who can spare the time should allow a chance of going, to slip past unimproved. Say that it is the month of May, and that the heat and mosquitoes of Smyrna have become too trying for the further endurance of the wandering European unfettered by special business there, let him secure a passage in a Cunard or other well-found steamer, and arrange to remain on board during the vessel's stay at Constantinople. By doing so he will participate in a number of advantages, among which immunity from the solicitations of the Stamboul mendicants is not to be lightly passed over, and he need be subjected to no inconvenience, except that of landing every morning to see the sights, at the cost of one piastre, or about two pence, to the boatman. Suppose, therefore, that the trip has been decided on, and that the tourist and his belongings are comfortably bestowed in a deck cabin, a few remarks regarding what he may expect to see, and the experiences he will probably meet, from one who has passed through the pleasant ordeal, and thoroughly enjoyed it, may prove welcome to some whose thoughts of a summer holiday next year tend in that direction.

It is evening when the voyage begins, and at 7.30 the screw commences to twirl. In less than half-an-hour the Acropolis and Mount Pagus will have melted into the general contour of the hills, and the old fortress, which

guards the Bay of Smyrna, has been left in rear. Looking backwards, the town, lighted up, as it probably will be for the evening, presents a pretty aspect; and as the passengers will likely be in a genial mood after dinner, and ready to exchange views with one another without introductions and without taking offence, traits of character both amusing and instructive may be noted on such occasions. Take, for example, the astronomically-inclined young lady who presently appears on deck, armed with a mighty volume full of constellations, and on being politely asked by the captain, or one of the officers, which star has gone amissing, says—"The Great Bear; I fear he is not out to-night."

"Oh yes, there he is," promptly replies the naval man, with a malicious twinkle of the eye, which is hardly quite honest.

"Where?" derisively queries the enthusiastic little inspector of the heavens.

"Why, over there, just between the horizon and the equator," coolly adds the mendacious sailor.

A silverly laugh and a hearty chuckle close the investigation for the time; the maiden turns over another leaf; the captain returns to the bridge; and the good steamer plunges into the gathering gloom of night.

It is a waste of energy in the passenger who attempts to sit up late when at sea, and reading is equally a prodigal expenditure of his eyesight, as the subdued light of most saloons, when not electrically lit, is scarcely conducive to the comfortable perusal of either fact or fiction. Infinitely better will he find the habit to be of retiring about 10.30, to reappear on deck clear-eyed and refreshed soon after dawn, when the fine island of Mitylene is in view. To the artist, or even the amateur dauber, the magnificent effects accompanying sunrise over this charming island will prove specially welcome. Words are wholly inadequate to convey an idea of the splendour of the sky colours as contrasted with the rich deep indigo of the Mediterranean, and the dim outlines of the picturesque isle between. Seen under such circumstances, and by the improving light, Mitylene offers

the singular contrast of a shore-line, smooth yet barren-looking, green with verdure yet suggestive of a desert. But this is only a trick of vision, for it is at once a beautiful and fruitful island, yet, unfortunately, not inhabited by the most honest race of the Levant. While the traveller is consulting his 'Murray' for information about his surroundings, or bothering the officer on duty for the name of a rugged peak, the Sigiri Lighthouse, on the westernmost point of the island, is passed, followed a little later by Cape Baba on the Troad; and should the weather prove clear and moderately calm, the course will be inside the rocky island of Tenedos over Beshika Bay, used on a memorable

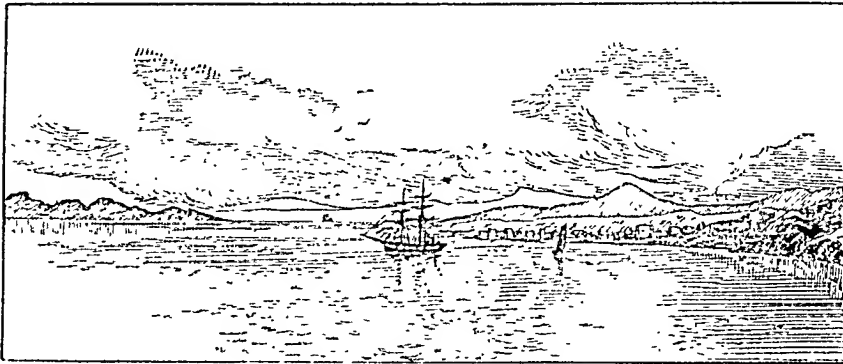


FIG. 53.—ENTRANCE TO DARDANELLES.

occasion within late years as a temporary refuge for the British fleet. Now, if ever, should the charms of Mitylene not have already coaxed the tourist's sketch-book from his pocket, is the time for the art-student to begin his record. He is passing the plains of Troy, with a background of richest verdure in forests of valonia oak, and with the grand opening of the Dardanelles (Fig. 53) full in front. Hardly is breakfast over than the magnificent portal, more than three miles wide, defended on the European side by the fort of Seddah Bahr, and on that of Asia by the castle of Koum Kaleh, is entered by the steamer, whose screw forthwith ceases to churn the waters of the Mediterranean.

Much has been vaguely written regarding the difficulties

a hostile fleet would require to encounter in attempting to force a passage through the Dardanelles to the Sea of Marmora, a distance of thirty-five miles. From the nature of the case perfectly reliable figures can scarcely be expected ; nevertheless, the following statement of the defences of this narrow strait, compiled from the ' Sailing Directions for the British Navy,' revised to 1882, will help to show that running the gauntlet would be attended with at least some risk :—

FORTS AND GUNS ON THE EUROPEAN SIDE.		FORTS AND GUNS ON THE ASIATIC SIDE.	
	Guns.		Guns.
Seddah Bahr fort	25	Koum Kaleh-si fort	25
Shahim Kaleh-si fort	15	Kephez fort	18
Kilid Bahr (two forts). . . .	54	Chanak Kaleh-si (three forts) .	182
Namaziel, Demaburnu and } Cham Kaleh-si (three forts) }	33	Medjidieh and Besah Kaleh } (two forts) }	29
Kimleh and Bokah Kaleh } (two forts) }	42	Nagaza Point (two forts) . .	64
—		—	
Guns mounted on European side	169	Guns mounted on Asiatic side	318

Thus it may be said that five years ago the channel of the Dardanelles was guarded by 487 pieces of artillery. On the other hand, it is asserted, that, although a few of these guns are of large dimensions and modern manufacture, many are of an obsolete pattern, and were designed to throw bullets of marble or granite, which missiles would simply impinge harmlessly against the sides of an armour-clad ship, like pease against a drum, making a deal of noise, but inflicting no injury. Nevertheless, after making every allowance for inaccuracies of description, and keeping out of the calculation the uncertain element of torpedoes, it may not be rash to say that a determined enemy, having a large number of heavily-armed ships of modern build, and prepared to submit to the sacrifice of one or two in passing, might, in the course of a few days, silence and dismantle every fort along both sides of the Dardanelles, and be in possession of Constantinople within a week of the assault.

About one-third of the way through, ships are required

to stop at Chanak, where the strait is narrowest, being only a quarter of a mile in width, to exhibit their papers, and, if necessary, to undergo an inspection by the officers of health. This point is defended by three considerable forts, mounting collectively 182 guns. These defences are called the Castles of the Dardanelles, and are distinguished by the names Chanak-Kalesi, or the Earthenware Castle, from a celebrated pottery on the Asiatic side; and Kilid-bahr, a double fortress, mounting fifty-four pieces of ordnance, on the European shore. In these forts some enormous brass guns are still to be seen, along with their marble and granite bullets; but these have been to some extent superseded by Krupp artillery.

An agent from the pottery is always on the outlook for the wandering European, and he hooks on to every passing ship. His boat-load of gaudy crockery is generally more remarkable for gilding and colour than for taste; nevertheless, the shapes are in some instances elegant, even classical; and specimens of tall water-jugs he sells are said always to command purchasers.

Released by the authorities, the steamer quickly reaches a broader part of the Hellespont, where the hill scenery on both sides is rather attractive. Again, the strait contracts at Nagara Point to about one-third of a mile; and at a rocky ledge on the European shore, the spot is indicated where the one side of the bridge of boats, once thrown across the Dardanelles by the Persian monarch Xerxes, was secured. At this place is believed to have been what was anciently called the Strait of Abydos, where the army under Alexander, commanded by Parmenio, crossed from Europe to Asia; where, in 1369, the Turks of Suleiman first entered Europe; and where Leander, Lord Byron, and some Englishmen in more modern times, swam from the one continent to the other. The remainder of the strait widens out to between three and five miles, so that the specialities of the shore-lines cease to be so well-marked as where it is narrower; but here, as everywhere else in

this beautiful and interesting region, the feature of the Dardanelles is the prevalence of cultivation rather than marked picturesqueness of scenery. The strata appears to consist entirely of limestone, not dislocated like similar rocks in other parts of the world, but lying horizontally as if all upheaved on a level, or left, as originally deposited, by the subsidence of the sea.

Beyond the termination of the Dardanelles on the European side, and at the commencement of the Sea of Marmora, stands the old town of Gallipoli (Fig. 54), owning at present a population of 20,000 persons; it has been Turkish since 1257. Apart from its value as a place of trade, this important town will always take a separate



FIG. 54.—TOWN OF GALLIPOLI, SEA OF MARMORA.

rank as the key to Constantinople, the Bosphorus, and the Black Sea. This circumstance was seen by the allied forces, in 1854, opposed to the encroachments of Russia, and Gallipoli was accordingly occupied by the British and French at the beginning of the Crimean war. At that time the military lines at Bulair were also formed across the narrow neck of land leading to the Thracian Chersonesus.

The Sea of Marmora is about 110 miles long from east to west, without reckoning its two deep gulfs, by forty miles broad at its widest part, and is a grand sheet of water, but not picturesque. Along the European side, traversed by the steamer, it seems fairly well cultivated, olive plantations preponderating. Yet over this great stretch of

water the only place usually touched at is Rodosto, a dirty, ill-built town of 30,000 inhabitants, about half-way between Gallipoli and Constantinople. Opposite this town, a few miles off, the bottom of the sea sinks into a profound abyss of 2760 feet, which is the deepest part of Marmora (Figs. 55 and 56).

Although this inland sea and its shores can scarcely be called attractive to the eye of an artist, it would be untrue to say the same of its islands. These afford views both beautiful and picturesque, especially the group of the Prinkipos (Fig. 56), nine in number, which lie parallel with

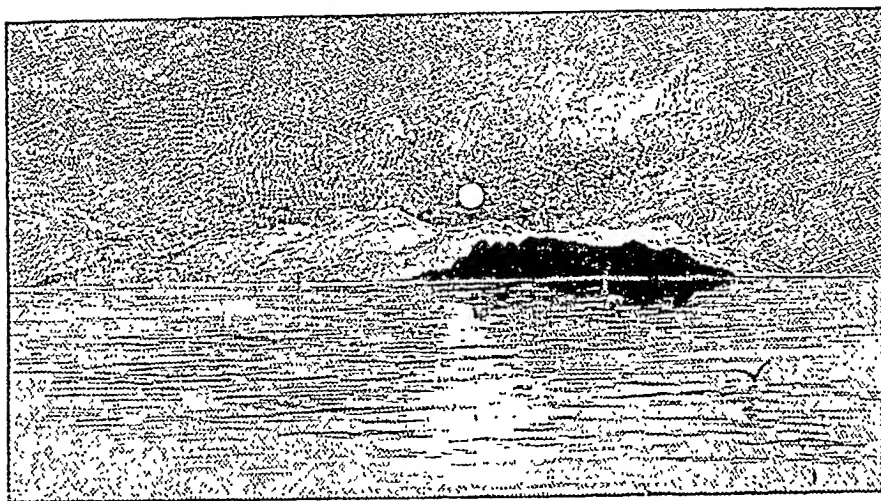


FIG. 55.—ISLANDS OF MARMORA AND ARAPLAR, AS SEEN FROM THE EUROPEAN SIDE.

the coast-line about six miles south-east of Constantinople. But long ere the voyager has reached this point, darkness will have supervened; and as he will have to rise on the morrow before the lark, if he hopes to see the splendours of Constantinople under the matchless tintings of the dawn, he will now be persuaded to retire to his cabin without delay.

There is probably no spot on earth the approach to which is more resplendent with real beauty, or witching with added attractiveness, than the magnificent panorama, whose focus is, the City of the Sultan. On the right hand extend the Islands of the Princes just alluded to, named Proti,

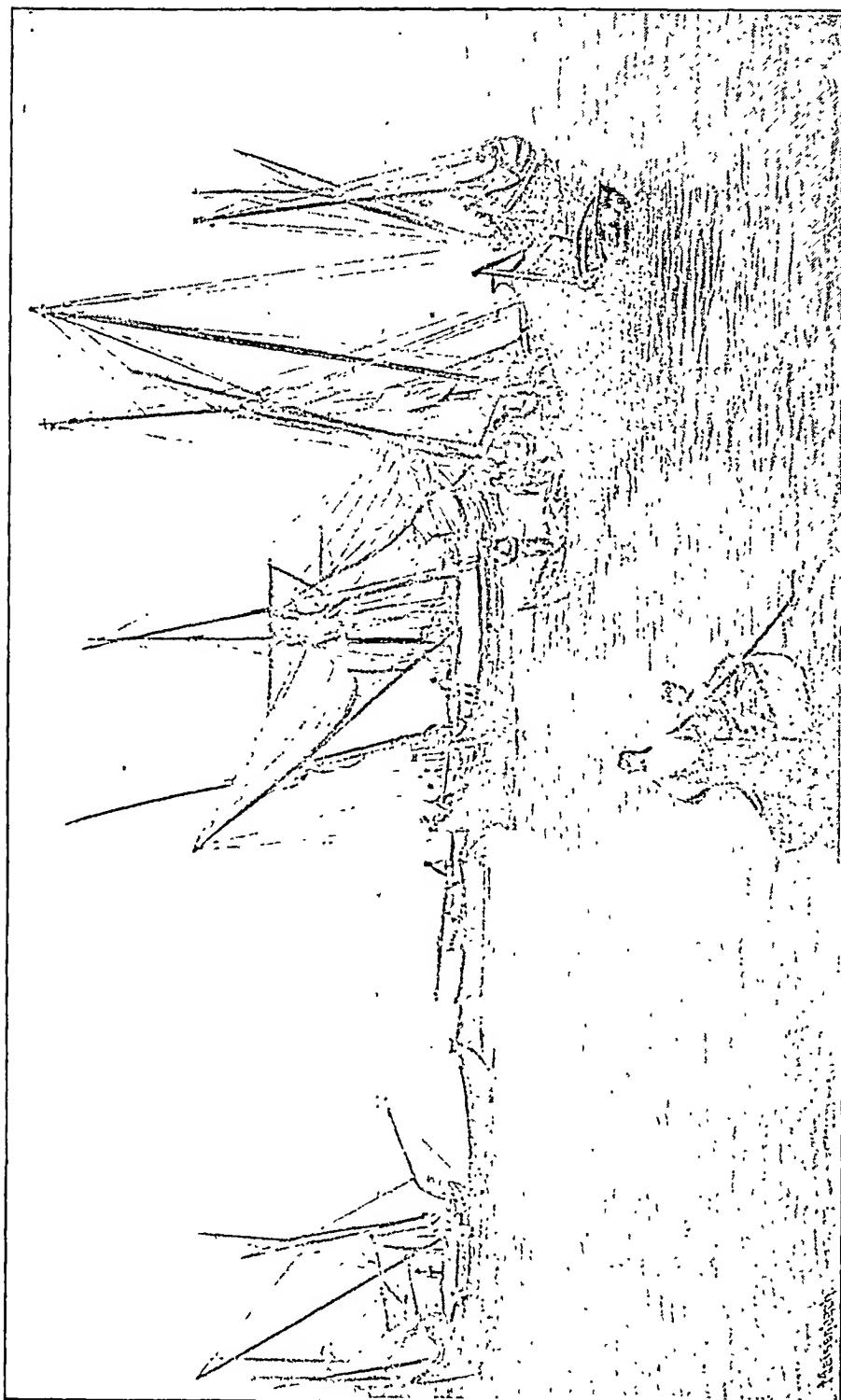


FIG. 56.—SEA OF MARMORA.

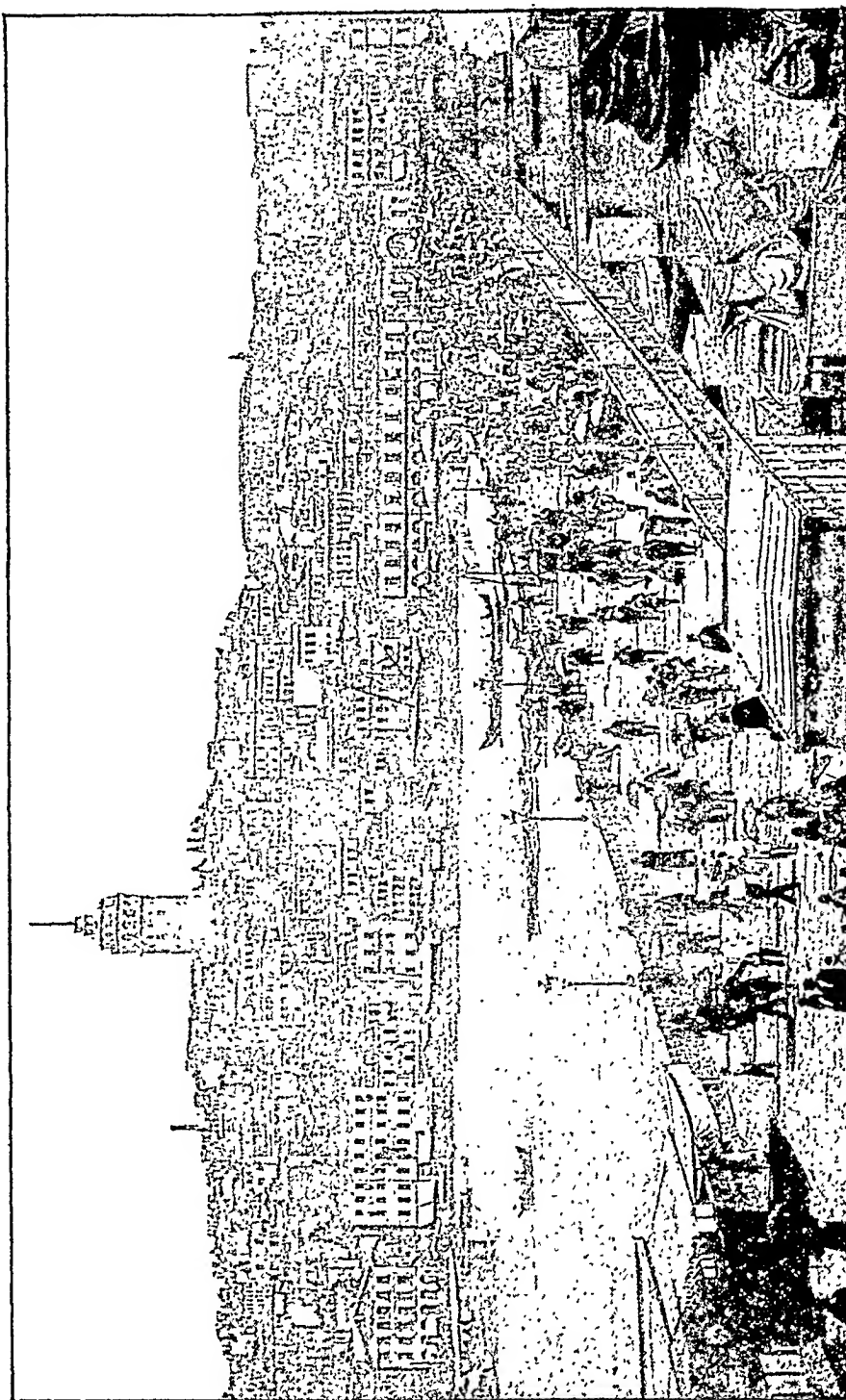


FIG. 57. — BRIDGE OF BOATS CONNECTING STAMBOUL WITH GALATA, CONSTANTINOPLE.

Aritigone, Halki, and Prinkipo; while on the left the old seraglio (Fig. 61), the mosques, minarets and tall houses of

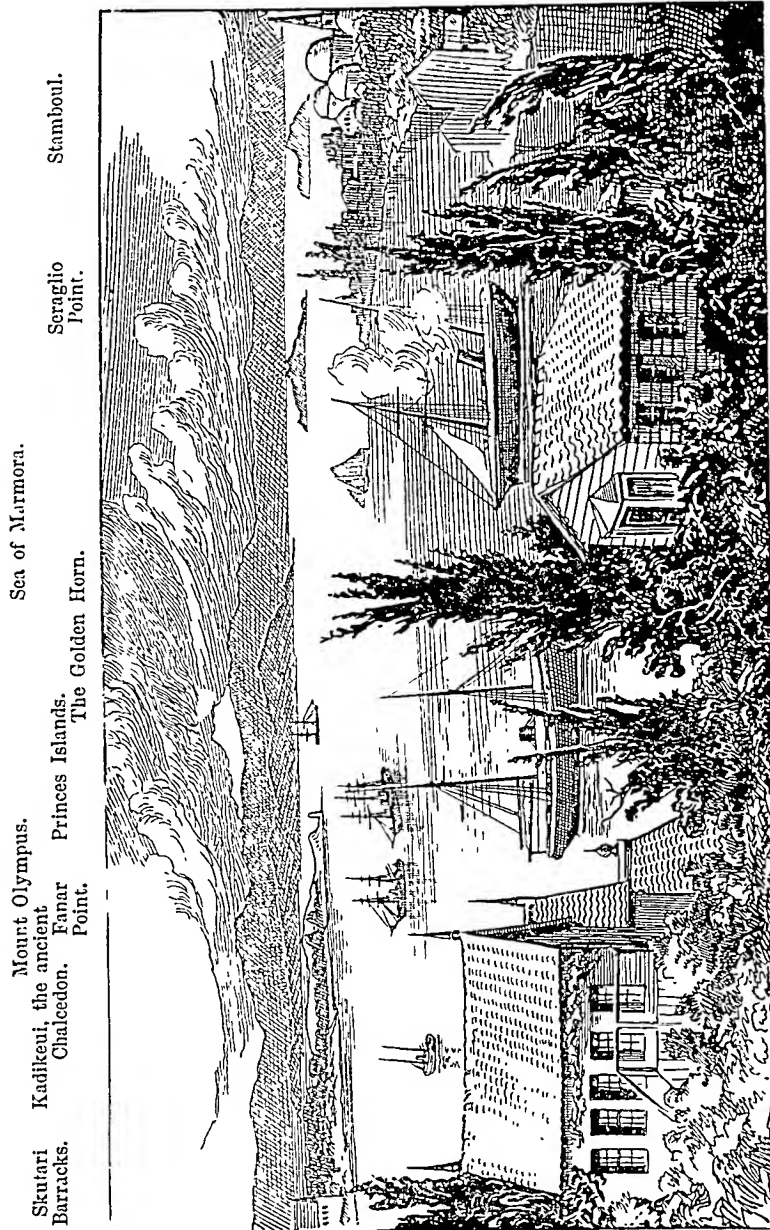


FIG. 58.—ENTRANCE TO GOLDEN HORN FROM PERA.

the suburbs of Stamboul appear to rise rapidly from the glittering wavelets.

Quickly, as if by enchantment, mosque, minaret, and spire seem to pile themselves upon one another in picturesque

confusion, until the eye is finally arrested and enchained by the grand culminating fane of St. Sophia (Fig. 60). A little more in front the morning mist yields up the twin towns of Galata and Topkhane, dominated by a vast signal tower (Fig. 57) of Genoese origin, the whole being crowned by the splendid European town of Pera (Fig. 57).

Towards the right centre the matchless Bosphorus (Fig. 61), covered with caiques and tiny steamers, fades away into the blue distance; while the Asiatic shore seems hidden with the mansions and gardens of Skutari, Kadikeui, and the ruins of Chalcedon (Fig. 58). While all this scene of loveliness and wealth is under contemplation, and the eyes of the visitor are still rambling over the seductive picture, the steamer has rounded Seraglio Point, the three hundred miles of a voyage between Smyrna and Constantinople have been completed, and the vessel is presently moored fore and aft to two large iron buoys at the mouth of the Golden Horn (Figs. 57 and 58), near the Bridge of Boats, and within two hundred yards of the Stamboul shore. It would be idle at the end of this essay to attempt any word-sketch of the capital of Turkey, where many square miles of hill and dale are covered with buildings, and where nearly two millions of human beings are loosely congregated together. There is sufficient material to fill a volume, so the subject may perhaps be allowed to simmer into the next chapter!

CHAPTER XXI.

CONSTANTINOPLE.

PROBABLY no team of travellers casually thrown together, through being in the same steamer, is ever likely to agree exactly regarding what they ought to do and see first on arrival in the Golden Horn. One is a staunch believer in his 'Murray'; another, in his 'Bradshaw'; a third maintains that 'Bädeker' is the friend in need, not the other two; while the most confiding spirit of the party pins his faith to a programme drawn out for him by some ancient warrior relative, whose experience of Turkey ceased with the termination of the Crimean war. There is really so much to look at, and make notes of, during a limited space of time, that the ordinary tourist, with only a week or a fortnight to spare, is certain to omit something worth investigation, and only to discover his loss when it is too late to repair the oversight. Under these circumstances it is desirable for his own comfort that the holiday-maker should have already arranged in his own mind, through reading and inquiry, what sights are likely to prove most interesting to him; then, on his arrival, let him engage a well-recommended guide (Fig. 59), at about five shillings a day, to conduct him about, and help him with his purchases; and, above all, let the traveller lay down before starting the main features of each day's round, and rigidly cling to the outline.

This advice will not be deemed superfluous when it is added that the following are the places and objects of special interest in and around Constantinople, which every stranger is recommended to visit:—The capital, consisting of Stam-

boul, Topkhane, Gálata, and Pera (Figs. 57, 58, 60, 61), on both sides of the Golden Horn ; Eyob, a pretty village



FIG. 59.—TYPE OF THE CONSTANTINOPLE JEWISH GUIDE.

containing a marble mosque, inaccessible to Christians, a few miles up the Sweet Waters of Europe ; Skutari and

Kadikeui (Fig. 61), on the Asiatic side of the Bosphorus; the Thracian Bosphorus, and its magnificent marble palaces and country villas (Fig. 65); the fane of St. Sophia and more than one hundred splendid mosques; the Hippodrome and its obelisks (Fig. 60); the great rock-hewn cistern of Philoxenus; the Castle of Seven Towers; aqueducts of the Emperor Valens; and the fountains, museums, public offices, covered bazaars, arsenals, and bridges.

The steamer which has brought the traveller to Constantinople, should he not have arrived by rail, is duly moored near the Stamboul side of the Golden Horn, in more than one hundred feet of water. Looking up from this point as soon as the fastening is complete, the eye rests upon but one grand object breaking up the sky-line—the great mosque of St. Sophia (Fig. 60). It is the culminating point, as seen from far or near, and the massiveness of the pile and slim beauty of its four tall minarets are almost certain to draw the visitor with art tendencies first in that direction. Presuming that a guide has been engaged, this ancient Greek church, now used as a mosque, can be reached in about twenty minutes' walking from the landing-place near the Custom House. At one time admission into any Turkish place of worship for a Christian was a matter of difficulty, and even of personal risk after the difficulty had been overcome. This is now changed for the better, and there are only two essential performances to be gone through—he must pay down ten piastres (about 2*s.* 1*d.*), and he must either pull off his boots, or place over them a pair of large slippers provided for that purpose by the verger on duty. These little preliminaries submitted to, no other demands are made, and the guide, along with his party, is free to wander all over the interior of St. Sophia at their leisure.

The first feeling that influences the visitor is that of vast, uninterrupted space, the temple being in the form of a Greek cross, and measuring 245 feet by 270 feet, with a dome 115 feet in diameter at the widest part, and rising 180 feet from the marble floor. In judging of the style, or

mixture of styles, of which the structure consists, it should be recollected that the building was originally erected for a Greek temple; that it became the cathedral of the capital in A.D. 325; that Justinian rebuilt it in 538, using in its resuscitation spoils from all the grandest ecclesiastical remains of Egypt, Syria, and Greece. It thus presents to the eye a multitude of beautiful and artistic items, the skilful combination of which into one majestic fane evinces a degree of merit in the architect, for which he deserves almost as much credit as if the whole had been his own original conception. On the other hand, it has been deplored that the grand temples of antiquity should have been robbed for the sake of embellishing any modern pile, the only reconciling feature being that centuries ago these ancient relics, of which those of Ephesus and Baalbec may be regarded as the types, had, through earthquakes and other causes, been long reduced to ruins. Altogether there are 107 massive columns in position, of which number, six granite pillars came from the temples of Delos and Baalbec; six of green jasper, from the temple of Diana at Ephesus; and eight of porphyry, originally placed by Aurelian in the Temple of the Sun at Rome, and removed hither by Constantine.

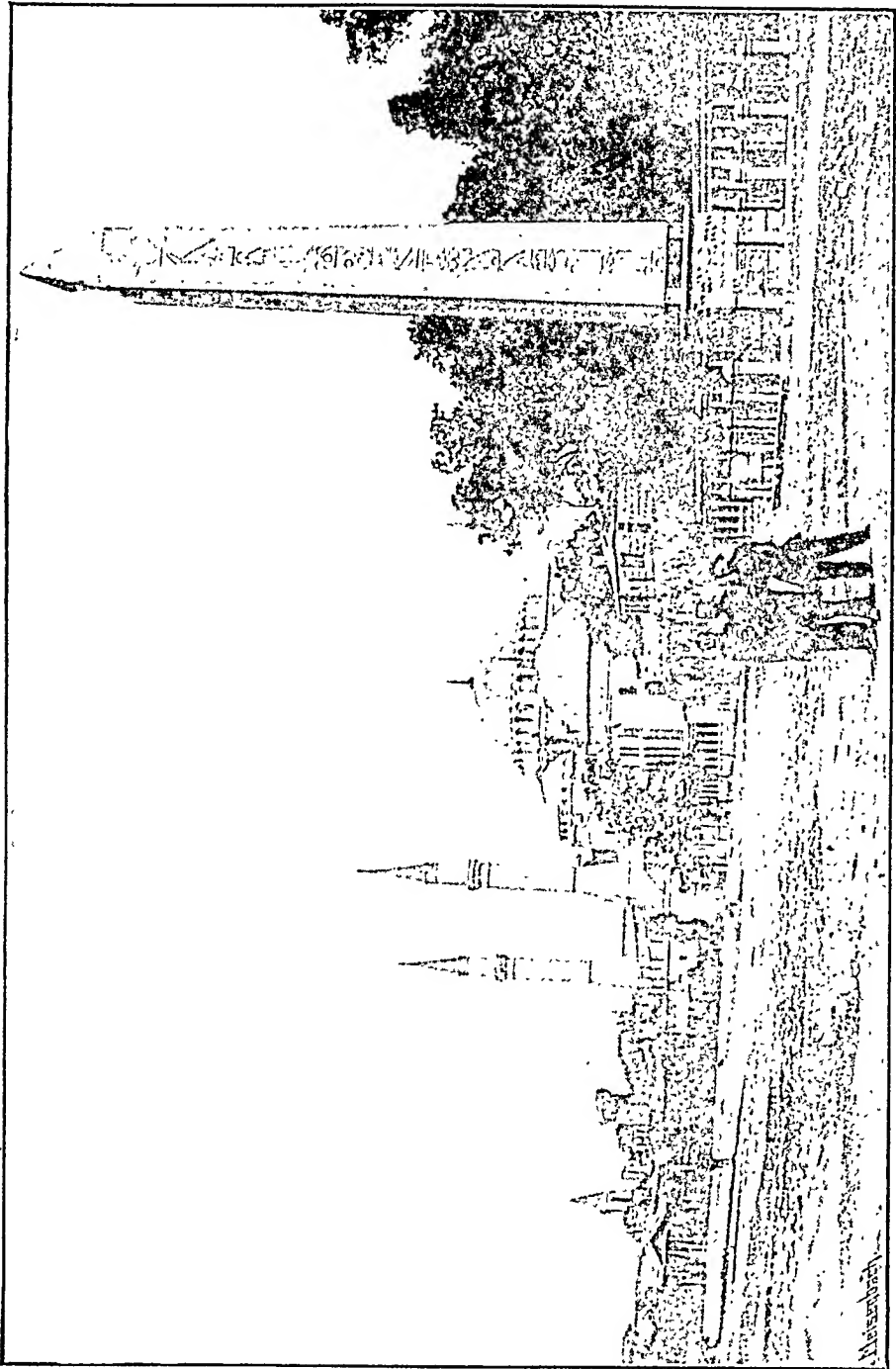
Of such vast size, and composed of such varied treasures, it is not surprising that St. Sophia took eighteen years to rebuild, and occupied an army of twenty thousand workmen.

The ascent to the gallery is accomplished, not by the usual device of steps, but by means of a series of gentle inclines, which pass around two of the massive pillars which support the back part of the building. The lameness of the Emperor, who completed the erection, is the reason assigned for this peculiarity of structure. Looking from the gallery the visitor cannot help being impressed by the massive splendour of the scene—the grand vista of priceless columns and bold arches supporting the dome, the walls radiant with various marbles, blue porcelain, and the ceilings still blushing with vividly-painted plaster-work and mosaics, on the great silver lamps beneath. But another train of

thought supervenes when, on close examination, he finds that decay is everywhere apparent—the lime is dropping from between the stones, the once rich colours on the ceilings are in places stained or dulled by time and damp, and the mosaic devices are being surreptitiously picked out and sold by handfuls, each for a few piastres, to every stranger who will buy. This grand building, the original model for every mosque in Turkey, is not now a place of fashionable prayer; hence, perhaps, its present neglected condition.

The other principal mosques are those of Suleyman, Achmed, Sultan Mohammed II., Sultana Valideh (Fig. 63), and Eyob; each has its merits, but it may be said that to have seen St. Sophia is to have seen them all; consequently, the tourist with little time at his disposal will do well to pass immediately on to the next object of interest.

On leaving this building the traveller finds himself in a large level, open space, like a barrack-yard, originally 900 feet by 450 feet when formed by the Emperor Severus. This is the Hippodrome (Fig. 60). Its spacious length is interrupted by two stone monuments and the fragment of a bronze pillar. The first of these is an Egyptian obelisk of polished granite, fifty feet in height, and covered with hieroglyphics. It was brought from Heliopolis. For some time after its arrival it lay prone on the ground, but was afterwards set up by the aid of machinery, roughly depicted on the pedestal. At the other end of the Hippodrome is another monument of greater height, built of small stones, and exhibiting flourishing bushes growing out of the upper courses. This pillar is weather-worn, besides being shattered and indented with shot. The local story about it is, that on each occasion when shocks of earthquakes are felt a piece of artillery is taken out, and the monument fired at to level it with the earth, lest it should prove unsafe. It has, however, resisted every such attempt at its demolition, and still stands a ragged yet sturdy specimen of the mason's art; but its purpose, its architect, and its builder have alike been lost in antiquity.



EGYPTIAN OBELISK.

HAGIA SOPHIA.

FIG. 60.—BACK OF THE MOSQUE OF ST. SOPHIA.

Between those two obelisks, in a kind of pit, rests a mutilated bronze column of three twisted serpents, standing, as it were, on their tails. In former days the heads of the reptiles spread outwards, and were said to have supported the altar of the Delphic priestess of Apolo at Ephesus. The heads have been broken off; two of them are lost, but the third is preserved as a precious relic in the Museum of Antiquities, in the old seraglio buildings not far off.

In the immediate neighbourhood is the great rock-hewn cistern of Philoxenus, the vaulted roof of which is supported, it is alleged, by 1002 massive marble shafts; but as each pillar is in three distinct lengths, the actual number is probably only 334. It is a spacious, cool vault, lighted by openings in the roof, which extends under some high ground situated above the level of the Hippodrome. This vast hollowed-out space was probably the quarry from which old Stamboul and its walls were built, and afterwards adapted by Philoxenus to contain the drinking water of the city. In the course of time, after the formation of aqueducts and fountains by Valens, the great reservoir ceased to be used for this purpose, and became a common receptacle for *débris*, so that at present the cistern is filled with stones and soil for two-thirds of its depth. When the foundation for the adjoining mosque of Achmed was being dug, the earth was carried to the tank and thrown in; accordingly, having on that occasion, and long before, been made a shoot for rubbish, this grand work, hollowed out of the solid rock at enormous expense, bids fair to be one day obliterated, as 668 lengths of massive marble pillars are already hidden from view. What remains of the vault is very spacious, and is used as a spinning factory for making silk thread and braid.

Several other places of interest in the vicinity are also worthy of a visit. There are the Seven Towers, named by the Turks "*Yedi Rouleh*." This was once a State prison, and bears the sanguinary reputation of having been the scene of the murder of seven different sultans, done to death by the Janissaries, before those wild warriors themselves

came to a violent end. Not far off is the museum of ancient and modern Turkish costumes, in which specimens of military and other dresses, with appropriate arms and implements, are displayed on lay figures. Some of these are grotesquely curious, some picturesque, and all are interesting.

Another sight, which should not be overlooked, is the Museum of Antiquities. As it is only of late years that the Turkish Government has become alive to the value of the ancient sculptured and other remains, with which the empire once abounded, this collection is as yet neither large nor important. But as attention is now turned to the stocking of museums, and foreigners are no longer permitted to dig promiscuously for, and remove, treasures of ancient art without a firman—which is very difficult to obtain—this collection may be expected to benefit in the future more largely than in the past. In addition to the usual mummies, sculptured Egyptian slabs, Babylonian cylinders, and remains of curious green metal things from Herculaneum and Pompeii, the museum possesses some good examples of Greek statuary in two fragments of colossal Jupiters, a Diana or two, and other well-preserved marbles, besides owning some most valuable bronzes, and a large collection of golden trinkets from the Troad.

If properly advised, the tourist, on his way back from the foregoing scenes, will pause for a time ere crossing the Golden Horn by the pontoon bridge, to take a survey of the great bazaars. It will be but a hurried glimpse he will thus get at the latter end of a day, as to walk through the whole area without stopping a moment anywhere, either to examine the wares or to purchase, is said to occupy eight hours. This immense collection of shops, where every kind of native and foreign product is sold, is most interesting in itself, if one can only forget or put aside the annoyance of the perpetual solicitations to buy, which assail the foreign visitor on every side. The shops are arranged in series of long covered alleys, each specialty of manufacture or product

being associated with others of a similar or kindred class. One vista is appropriated to the sale of carpets, prayer-rugs, &c. ; another alley accommodates the dealers in silks and light fabrics ; a third is occupied by the sellers of leather work ; a fourth department caters solely for the soldier, the sportsman, and the brigand, and shows nothing but myriads of rifles, guns, swords, spears, and daggers ; the adjoining narrow passage is replete on both sides with all the fragrant drugs, condiments, and essences of the East ; the confectioners' and pastrycooks' avenue exhibits many a tempting morsel, and occasionally a pretty English mouth consuming the same, attracted thither perhaps by the announcement that the Prince of Wales once took an ice there ; while all through the heterogeneous display the sharp Armenian money-changer is seen, like a patient spider lurking behind his tiny glazed, wire-covered stall, ready for a percentage to transmute the coinage of any country under the sun into piastres.

A commanding object, situated half-way up the hill to Pera, at once arrests the eye when the Stamboul side of the floating bridge is reached. It is the old Genoese watch tower (Fig. 57), used at present, as it was centuries ago, for the purpose of signalling ships, from the summit of which a magnificent view is obtained. From this coigne of vantage the visitor may in a quarter of an hour learn more regarding the arrangement of Constantinople, and its relation to the adjoining country, than a week's patient street-plodding could teach. He will see, beginning at the extreme left, the distant European and Asiatic hills, the town of Skutari on the Bosphorus, and its Turkish and English cemeteries ; the pretty village of Kadikeui (the ancient Chalcedon), and Princes Islands, resting fair and lovely in the Sea of Marmora, ten miles away (Fig. 56). The next change of position reveals the Golden Horn and its three lighthouses, floating in safety a vast fleet of the ships of all nations ; while far below his feet he will note the closely-packed houses of Pera, Galata, and Topkhane, the artillery-

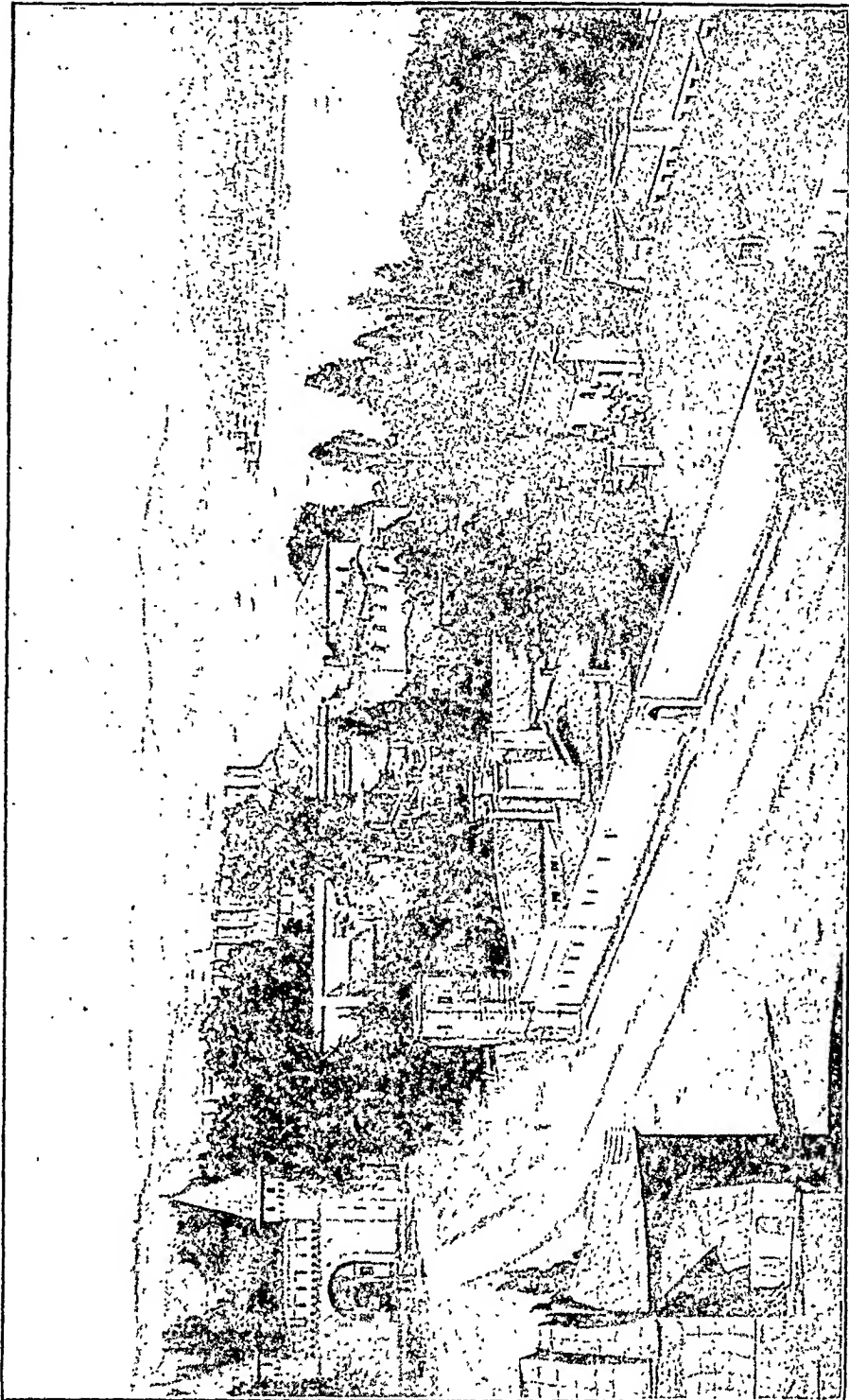


FIG. 61.—INSIDE THE OLD SERAGLIO ENCLOSURE, WITH SKUTARI ON OPPOSITE SIDE OF THE BOSPHORUS.

ground and buildings, Seraglio Point, the Mint, a crowd of sumptuous mosques, and the pontoon bridge. Still veering



FIG. 62.—MODA BAY, NEAR SKUTAH, ASIATIC SIDE OF BOSPHORUS.

towards the right, the eye dwells upon an imposing pile of stone and lime connected with the War Ministry; on the

huge white fire-tower, with its fantastic top, and the picturesque old aqueduct, roofed with the reddest of tiles; while a final turn of the head shows the second bridge of boats across the Sweet Waters of Europe, the arsenal, naval hospital, the pretty white-marble mosque of Eyob (Job), nestling among tall cypresses in the distance, and a fleet of serviceable ironclad ships-of-war moored stern to the shore, and evidently ready for any contingency. The whole panorama is as gorgeous as every individual item in it is interesting; yet, perhaps, upon no points of the spacious landscape and long stretch of sea will the look of the Briton settle with keener attention than upon the ugly yellow barracks of Selimiyyeh at Skutari, where once upon a time ten thousand of our troops were lodged, and on the dark cemetery beyond, where eight thousand of them rest.

Descending from the tower, the traveller cannot do better than continue his walk through the vicinity, which forms part of the foreign or Frankish quarter of Constantinople. On this side of the Golden Horn there were once three distinct cities—namely, Topkhane, Galata, and Pera; but through the spread of population, and extension of buildings in every direction, the three have got merged into one, and cover most of the ground opposite Stamboul, or old Constantinople, and extend between the Golden Horn and the Bosphorus. Topkhane occupies the easternmost situation on the Bosphorus, opposite the town of Skutari, and is inhabited principally by the army entrusted with the defence of the capital; Galata is owned and populated by members of almost every civilised nation in the world, and there most of the trade of the port is conducted; while beautiful Pera, on the upper part of the hill, is also full of business people, and is the home of all the embassies and law courts connected with them. Thus there is a constant kaleidoscope of life presented at the handsome shop windows and meandering through the streets, so that a saunter in the Grande Rue, if not so replete with Oriental interest as a

lounge in Stamboul, has its evident compensations. In a word, a multitude of charming objects and places all over the hills upon which Constantinople is built, vie with one another in claiming the tourist's attention, apart from and

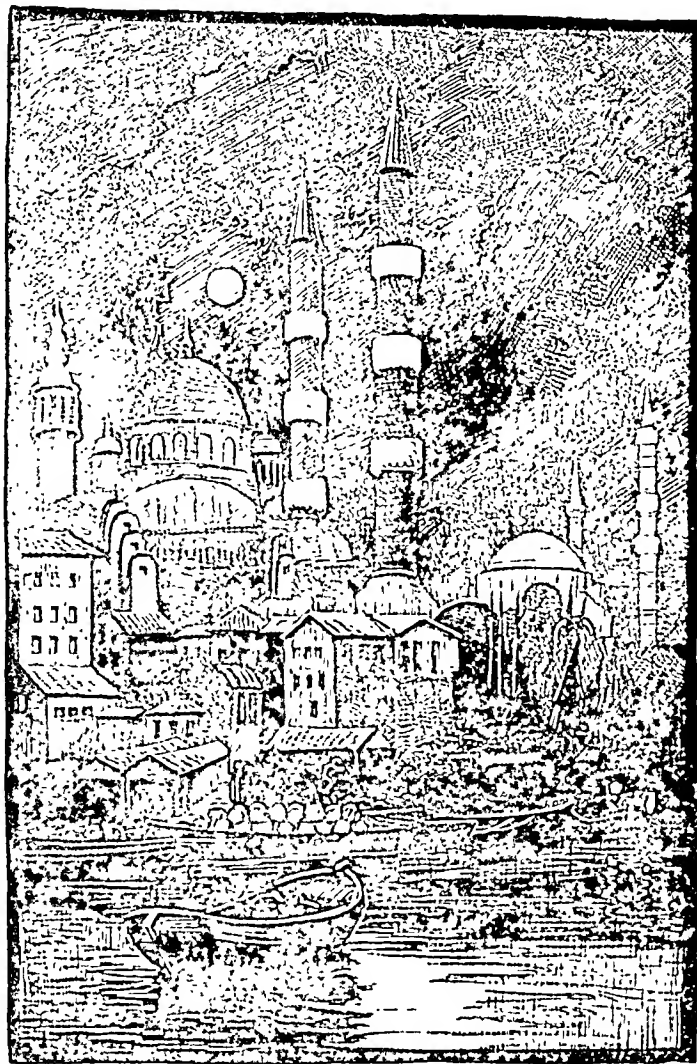


FIG. 63.—MOSQUES OF SULTANA VALIDEH (CONSTANTINOPLE) ILLUMINATED.

in addition to the exquisite trips here and there, up the Bosphorus, to Princes Islands in the Sea of Marmora, along the lines of railway to Adrianople, Broussa—the great silk centre of Asia Minor, and former capital of the Turkish Empire—and other places. If he be an artist whom this

essay tempts into the region described, he will find his fortnight or month too short for all there is to see and do; if a man of science, not an hour too long. The scenic variety, historical associations, brilliant sunshine, magnificent climate, and pure atmosphere cannot fail to produce an elasticity of body and spirit, to which the denizens of the ancient, but smoky, manufacturing cities of Great Britain are comparatively strangers. Indeed, the probability is, that the intelligent and unbiassed visitor from any part of Great Britain, who enjoys the advantage of good local information, who uses his own faculties upon the spot judiciously, and who, without claiming to be a prophet, can to some extent forecast events, will return to his home in due time well satisfied that this splendid inheritance should still be held by the Turkish nation rather than by the enemy of Europe and civilisation, the grim Octopus of the North.

CHAPTER XXII.

GERMAN COMPETITION IN THE EAST.

THE British pilgrim who has been resident in Constantinople and parts of Asia Minor for a few weeks, cannot fail to have remarked the prevalence of German commodities in the shops and warehouses, and to hear on all hands of the spirit, pertinacity, and success with which the average commercial traveller pursues his trade. Now, instead of deploring and mourning over this German success in the East, as some of our home manufacturers and merchants have for years been doing, it would be at once more manly, and more to the purpose, to find out and strengthen the weak points in their own harness, or in some way to modify their commercial machinery, so as to place themselves more in line with their Teutonic rivals. It is true that German merchants all the world over receive more useful and hearty assistance from their consular agents than the British trader does from his; and no less certain is it that the German Government, through the eye and finger of Prince Bismarck, is ever alive to the needs, real or imaginary, and to gratify the longings, legitimate or otherwise, of its mercantile sons in every quarter of the earth. About these facts there can be no dispute; but, while they are admitted, it must still be allowed that there remains a wide margin, creditable to German forethought, energy, and enterprise, to account amply for their mercantile prosperity in the East, particularly in Asia Minor and other parts of Turkey.

The days have long since disappeared when the wine

trade was considered the unfailing, if the last, refuge for the broken-down, destitute gentleman; so, in all the pursuits of modern life, a failure in one calling is not now considered a sort of passport to another. On the contrary, it becomes every day apparent, as the Germans for years have seen, that suitable technical and other education will be more and more required for even ordinary success in any department of human industry, and that boys must henceforth be carefully and properly educated for the particular branch they are intended to follow.

For the purely professional or scientific man the acquisition of the dead languages is indispensable, whilst a knowledge of contemporary tongues is simply desirable; but for the lad destined to become a manufacturer or merchant, this part of his educational programme ought to be reversed. The Germans seem to have acted upon this belief for a considerable time, with the result that, among those met in commercial circles in any capital of the world, it is the rule to find most of them speaking several languages with accuracy and readiness, whereas the representatives of the greatest manufacturing and mercantile community in the world too frequently understand no tongue besides their own.

In Asia Minor this neglect of modern languages, on the part of the British commercial house, has hitherto told largely in favour of the German; as it has allowed him unopposed to ramble over an immense field of five hundred and eight thousand square miles of Ottoman territory, and to sell his goods and products, unchallenged by an inconvenient foreign rival, to more than sixteen millions of people. Unlike many of the large commercial firms of England and Scotland, who are usually content simply to deal with similar extensive concerns in Smyrna and Constantinople, the German house pushes its travellers, with a polyglot assortment of samples, into every nook and corner of the Turkish Empire, where the buyers are talked to in their own dialect, are shown specimens, and have all

little difficulties explained. The result is, that mutual confidence is established; because the traveller, noting what is required, supplies on the next occasion of his visit the article demanded, improved or modified to suit the taste or whim of his buyer, and thus deservedly carries away many orders. There is a degree of elasticity about the dealings of the German commercial traveller, which, added to his mastery of the various dialects, wins a hearing for him among the little shopkeepers or village dealers wherever he goes. His shapes, designs, fabrics, or colours may be infinitely superior to those to which his clients may have been accustomed; but the traveller does not dogmatically assert their excellence over the native articles shown, as some commercial men from Britain and America are somewhat apt to do. The German humours the country buyer in every possible way, and is prepared to furnish fac-similes of all articles exhibited, no matter how ugly, clumsy, or uncouth-looking to his educated eye they may appear. In districts remote from frequent contact with European civilisation, as many inland villages of Asia Minor are, the peasantry are to a great extent regardless of appearances. Of the fine arts they know little and care still less; consequently, when bargaining, they look first to the general aspect or material of the article being familiar, then they inquire into its power of endurance, and, lastly, they are swayed by moderation in price, in which requirements the German travellers generally succeed in impressing the people favourably.

These active and clever salesmen may be seen any day, well mounted and armed, accompanied by Turkish cavalry guards, setting forth at dawn from Skutari and other towns on the Asiatic side of the Bosphorus; from Broussa, the great silk entrepôt of Turkey; from Seraikeuy, the terminus of the Smyrna and Aïdin Railway; and from other well-known centres of commerce, with their samples or stock secured on pack animals behind. True, they are fearless and intrepid men; they are first-class business men; and

it is likewise certain, that they can each speak and make amusing little commercial jokes in several languages, which is probably one of the reasons of their success with country folk, who like heartiness of manner and fluency of speech; but it is equally certain that, beyond the mastery of tongues, they possess no gifts of courage or ability necessarily denied to their British brethren of the road; and that their wares are in no instance superior to, if nearly so good as, those of British manufacture.

At this point the element of forethought already alluded to may be explained, as it has played an important part in smoothing the way of the German all over Turkey in the past, and will doubtless exercise even a greater influence in the same direction in the future. British Governments of both political sides, in common with the other Powers of Europe, except Germany, have, for at least half a century, vied with each other in maintaining cumbrous, comparatively useless, and expensive consular establishments, with corresponding tribes of idle, yet important-looking, officials in Constantinople and Smyrna. Thousands of pounds of public money are annually squandered upon the ambassadorial and consular residences, buildings, and gardens at Pera, on the Golden Horn; at Therapia, on the Bosphorus; and upon the nondescript, gloomy consular pile at Smyrna. Wiser in its generation, the German Government spends comparatively little money in this manner, but is far from stinted in grants at both these great cities for educational purposes. The outcome of such a policy is, that learned German professors, of both sexes, have become the teachers of a large portion of the Christian youth, and many of the Mohammedan children of Turkey, thereby establishing a well-merited claim to the gratitude of the population.

The Deaconesses Institution* in Smyrna, an educational establishment, conducted by a German lady for thirty-four years with marked ability and success, in which children of

* Alluded to more particularly towards the end of Chapter XXV.

all parentages and faiths have been and are being educated, is a good specimen of German philanthropy. Unfortunately, Turkish girls are generally removed from this most valuable college when they are about twelve years of age, so that they fail to reap the benefit that Greek, British, and the female children of other nationalities enjoy, who often, indeed generally, finish their education there. Still, the time they do spend with the deaconesses must be considered of special value by their countrymen, for the Turkish girls invariably enter into the matrimonial state almost as soon as they leave.

There is in this way a kindly disposition engendered in the minds of the Turkish people towards the Germans, which very naturally finds scope in their giving encouragement to German articles of manufacture. "But for the presence of a subsidised German college, supplemented by an American educational establishment near Constantinople," said an English gentleman, living at Pera last year, to the writer, "I could never have got my boys educated on the spot, as there are no similar British institutions in all Turkey." British officials in London would probably reward the proposer with the characteristic stony stare of the "Circumlocution Department," who would even hint at spending money in the East, as the Germans do, in a few wholesome, much-needed, and truly reproductive educational grants. Yet the same dignified beings experience no sense of impropriety or reproach in annually asking Parliament for £3000, or as much more as they think the legislative temper of the period is likely to stand, to squander upon official buildings and gardens in Constantinople, Smyrna, and elsewhere. Ambassadors and consuls—who in many cases are much too lavishly paid for their services, when compared with the scale of remuneration allowed by other nations, and judged by their own performances—ought to maintain their residences and gardens during their period of occupation at their own expense, seeing they enjoy them rent-free. On the contrary, they are perpetually dipping

into the public purse without shame or rebuke, while British subjects in Turkey, whose commercial activity creates national wealth in every direction, are not allowed even the most juvenile of Board schoolmasters, and are dependent on Americans, Germans, and Greeks, for the education of their children. Following a better *rôle*, the Germans refuse to starve education, either at home or abroad, for the sake of enabling a few plethoric officials to make and keep up a vulgar show. Doubtless, it is in this good and sensible system, that the secret of German commercial success in the East lies. Our manufacturers and merchants have their share of the lesson to learn, as well as all future British legislators ; and until it is thoroughly conned, understood, and practised, the German commercial grasp on the trade of Asia Minor, and on the East generally, is bound to strengthen, while ours must relax.

CHAPTER XXIII.

THE BOSPHORUS.

IF asked to join a party, about to proceed along the Bosphorus for a day, and indulge in a picnic on its fairy-like shores, my impression is, that the traveller is not yet born who, being in Constantinople at the time, and free at the moment from any other engagements, could refuse. On the 15th June, 1885, I fulfilled these conditions; I was requested to form one of such a party, and it need scarcely be added that I gladly acquiesced.

In view of the event, we breakfasted somewhat earlier than usual, and the steward of the steamer with which I had arrived from Smyrna having packed a hamper or two with such appetising fare as his pantry afforded, the party, including the captain, the steward, and a Hebrew guide left the ship, got on board a Bosphorus steamer, and, shortly thereafter, started in the direction of the Euxine, under the influences of bright sunshine, a fresh breeze, and the best of spirits. The beautiful strait known as the Thracian Bosphorus, begins at an imaginary line drawn between Seraglio Point, Stamboul, on the European side, and Fanar Point, near Kadikeui, on the Asiatic shore (Fig. 58); and it terminates at the entrance to the Black Sea, between the headlands occupied by the lighthouses of Roumili and Anatola (Fig. 69). The length of the strait, including its windings, is about seventeen miles; the breadth varies between eight hundred yards and one and a half miles; while the depth of water in the centre deviates between one hundred and twenty feet to over one hundred and thirty

yards. With such a volume of water as these measurements indicate, constantly flowing westwards with considerable impetus out of the Euxine into the Sea of Marmora, it might reasonably be concluded that the progress of vessels steering a north-easterly course would be seriously impeded. There would, undoubtedly, be great interruption to traffic, but for the tortuous form of the strait, whose numerous twists and promontories break and divert the force of the current, which is driven hither and thither, leaving many stretches of smooth water between what may be called the rapids. This being the case, even rowing-boats experience little difficulty in making way. There are periods of tempest, however, when neither pulling, nor any other description of boats are likely to have a time of enjoyment in this usually placid strait. Such an epoch is pictured in the fifth canto, fifth stanza, of 'Don Juan,' by Lord Byron, where he says:—

"The wind swept down the Euxine, and the wave
Broke foaming o'er the blue Symplegades;
'Tis a grand sight from off the 'Giant's Grave'
To watch the progress of those rolling seas
Between the Bosphorus, as they lash and lave
Europe and Asia, you being quite at ease;
There's not a sea the passenger e'er pukes in,
Turns up more dangerous breakers than the Euxine."

These are scarcely the proper pages in which to engage in a serious inquiry regarding the probable origin of the gigantic submarine cleft, which, extending along the Propontis and Hellespont, has, in prehistoric, or early ages, separated two continents. The matter has doubtless frequently received the attention of the savants of Europe, but as the subject is still as much as ever involved in obscurity, there may be no harm in giving the reader the benefit of one more opinion to the effect that, if the Bosphorus and Dardanelles were really the work of volcanic agency, it may not be unreasonable to imagine that, by the same violent means, those great waterways may one day be closed. The works of Nature are beautifully balanced, and the law of

compensation reigns everywhere. If the sea tears away miles of dry land here, it is restored somewhere else; if an island sinks, another rises; if a vast chasm suddenly occurs in one country, be sure that a mountain has been thrust up in another. It is perfectly reasonable to suppose that the channel in question, particularly that of the Bosphorus, could never have been formed solely by the action of water running at the mild speed of only four or five miles an hour. The great depth of the ravine, and the remarkable correspondence between the projecting capes on one side, and retreating bays on the other, forbid any except the belief that this vast crack in the earth's crust was formed by some terrific earthquake. To go a step further, it is not unreasonable to suggest that it may have been the same convulsion which, scooping out the profound depression in Syria, known as the Dead Sea and valley of the Jordan, thrust the materials upwards in the middle of Asia Minor in the form of the 13,000 feet volcano Aggridagh. Not unlikely, too, it may have been the same terrible concentration of subterranean forces which elevated the volcanic cones of Java, and in the islands adjoining; notably the great Krakatoa, which, a few years ago, broke up with such violence and commotion, that it sent a wave several times round the earth. In the latter example, the compensating volcanic effort appears to have been the recent disturbance in the north of New Zealand, by which the lava and mud of Mount Taravera have obliterated many square miles of territory, solidly filled up some lakes, and destroyed the pink terraces of Rotomahana. That which has happened before may occur again, and we have the warrant of Scripture as written in Revelation xvi. 18,* if read as a prophetic warning, for believing that, vast as has been the disturbance caused by volcanic agency in the past, it will be greatly exceeded at some future period. What more likely, then,

* "And there were voices, and thunders, and lightnings; and there was a great earthquake, such as was not since men were upon the earth, so mighty an earthquake, and so great."

that the final settlement of the Eastern Question may depend upon the occurrence of this grand, promised perturbation; a solution which the united brains of European statesmen have hitherto sought in vain to achieve? The earthquake just alluded to is the last mentioned in Holy Writ, and is specialized as the greatest since the earth became habitable; so, what more probable than that it should be the means of restoring the territorial conditions of Syria and Asia Minor, which existed ere the vast fissures of the Jordan valley and the Bosphorus were made? The catastrophe would be tremendous, and conceivably might occur in this way:—A terrible earthquake, acting upon the eastern shores of Syria, might form a rent sufficiently deep and wide to admit the waters of the Mediterranean into the abyss of the Dead Sea,* and, in time, fill it up to its own level. Simultaneously with the opening of this new channel, by the law of compensation, another would likely close; and that other, as being in the line of 'volcanic energy, would probably be the Bosphorus. This outlet once permanently stopped, the waters of the Black Sea would seek a discharge in the direction of the Caspian; the Russian fleet in those waters might then be sold for firewood and old iron, and the Sultan of Turkey would be the first of his race emancipated from the fear of the ever-prowling bear.

The voyage commenced from the Bridge of Boats (Fig. 57), which crosses the Golden Horn beyond the commercial port; a point from which good views are obtained of several mosques, particularly those of the Sultan Suleyman, and the Sultana Valideh (Fig. 63). The little steamer was in charge of a Turkish captain, who used the same words of command to the engineers so familiar to the ear of the voyager upon the Thames, the Mersey, or the

* "At the present time (1866) the depression of the surface of the Dead Sea below the general ocean-level may be stated, in round numbers, to be over 1000 feet; but there is as yet no accord among observers. Symonds gives the figures as 1231 feet; De Berton, 1290 feet; Russegger, 1341 feet; Wildenbruch, 1351 feet; Lynch, over 1300 feet; and the Duc de Luynes, 1286 feet."—Ritter's 'Comparative Geography.'

Clyde. Presently the swift little vessel edged away from the crumbling wooden pontoon, and sailed towards the eastern extremity of Constantinople.

On making inquiry how it happened that the usual orders were not given in Turkish, it was explained that those steamers had all originally been manned and worked by English or Scotch captains and crews; that some of the engineers were still Scotch, and that, as the Turkish language contained no suitable equivalents for "full speed, half speed, stop her, ease her," and so on, these words had been by the Turks adopted and retained.

Within the next few minutes Pera, Galata, and Topkhane were passed, good views being obtained of the artillery enclosure and buildings, also those of the Admiralty, where on one occasion the Prince of Wales was lodged during a visit to the Sultan. A little further on we were gliding close to the front of the magnificent imperial palace of Dolma Bagtche, a building for the most part faced or decorated with white marble, beautifully sculptured. This costly pile was reared by the late Sultan, Abdul Aziz, and is within sight of another, about equally gorgeous, in which that ill-fated monarch was assassinated.

From the European side of the Bosphorus the bow of the steamer was now turned towards the Asiatic, and after passing Leander's Tower, erected on a rock in the waterway (Fig. 61), which combines in one building a lighthouse and fort, we stopped for a minute or two at Skutari. The original name of this town was Chrysopolis, or the Golden City; but by the Turks it is at present recognised as "Uskudar," on account of its being a posting-station, where travellers, about to penetrate into the interior of Asia, obtain transport animals and couriers. Its situation is at once commanding and beautiful; but the chief interest connected with the neighbourhood, to the British tourist, lies in the fact, that so many countrymen are buried in its cemetery; and few fail to go ashore, with the object of examining the scene of Florence Nightingale's unselfish labours, and to

inspect Marochetti's monument, erected in commemoration of our soldiers, the victims of the Crimean struggle of 1854.

The next station is at the village of Kadikeui (Figs. 58 and 62), a favourite home of the merchants and some of the officials of the capital, on account of its geniality in winter. It is so situated that it benefits in summer by cool breezes both from the Bosphorus and the Sea of Marmora, yet escapes the terribly cutting winds from the Black Sea, which prove such an annoyance in Constantinople during the early months of the year. Towards the end of the ground tapering off to the right near Fanar Point, as pictured in Fig. 58, are still to be found the remains of ancient Chalcedon of Bithynia, built by a colony of Greeks from Megara. By classical writers this unfortunate site was ridiculed by being called "the city of blind men," on account of its position and alleged inconsiderate plan.

Leaving Kadikeui, the steamer turned, and to some extent retraced her course by crossing to the European side towards Cabatasch, and thence to Bechiktasch. Once more the grand pile of Dolma Bagtche came full in view, followed by the still larger palace of Cheraghan, rendered notorious as the scene, already referred to, of a late Sultan's murder. This is truly a handsome building, and with its offices and gateways occupies nearly half a mile of frontage to the strait, presenting to the eye a marvellous, yet melancholy, expanse of white marble and the richest floral carving. The melancholy feeling, experienced when surveying those handsome Bosphorus palaces, must arise from association only, as there is nothing about them outwardly either weird or tragic. Yet, if one can credit the guides, every building there owns its miserable story of crime, and probably every yard of water in front of them might be made to yield up its awful evidences of former brutalities in many a weighted bag of human bones, the relics of a ruder and fiercer age. On the present occasion, all looked bright and beautiful, and had not this palace of blood been specially pointed out, thereby

recalling the melancholy tale connected with it, no cloud would for a moment have rested upon any of the party.

High up on the hill-top is a small, plain palace, in which the present Sultan resides for the most part of his time. Afterwards my party secured some landward views of this modest kiosk, taken on the occasion of His Majesty's weekly visit to one of the Constantinople mosques, during the period of Ramizan. On such occasions a large force of artillery, cavalry, and infantry lines the road on both sides over which the Sultan intends to pass, and the carriages of the household are preceded and followed by a considerable guard of troops.*

On the same side of the strait, a mile or two on, rather a handsome mosque with two minarets attracted our attention, standing on a point projecting into the Bosphorus. It is named Ortakuy, and some years ago used to be a favourite place of worship with a former monarch, who frequently visited it by water on Fridays, the Mohammedan day of rest. At a little distance the whole building would readily be mistaken for a structure of white marble, so well is the work executed; but a nearer approach reveals it to be only of brick and plaster, carefully painted and white-washed.

Anon the steamer shot past picturesque wooden villages, where every house displayed its projecting balcony glowing with flowers, and any gloomy thoughts connected with former dark deeds in the marble palaces below evaporated, under the splendour of the sunshine, and the ozone of the

* This ceremony is known as the "Selamlık." We waited about an hour, at a part of the road appointed for the carriages of foreigners, ere the pageant began. First came a number of troops with bands, then a crowd of eunuchs and servants, followed by more soldiers and music. Next in order were a few black pioneers with axes, as like executioners as possible; some distance behind followed carriages containing the Sultan's children, very pretty, but delicate-looking; and immediately succeeding them came the Sultan's mother, who seemed to get the bulk of popular attention, on account of the quantity of piastres she kept scattering from her carriage window. After another interval the Sultan himself appeared, surrounded by guards, and followed by a large detachment of horsemen.

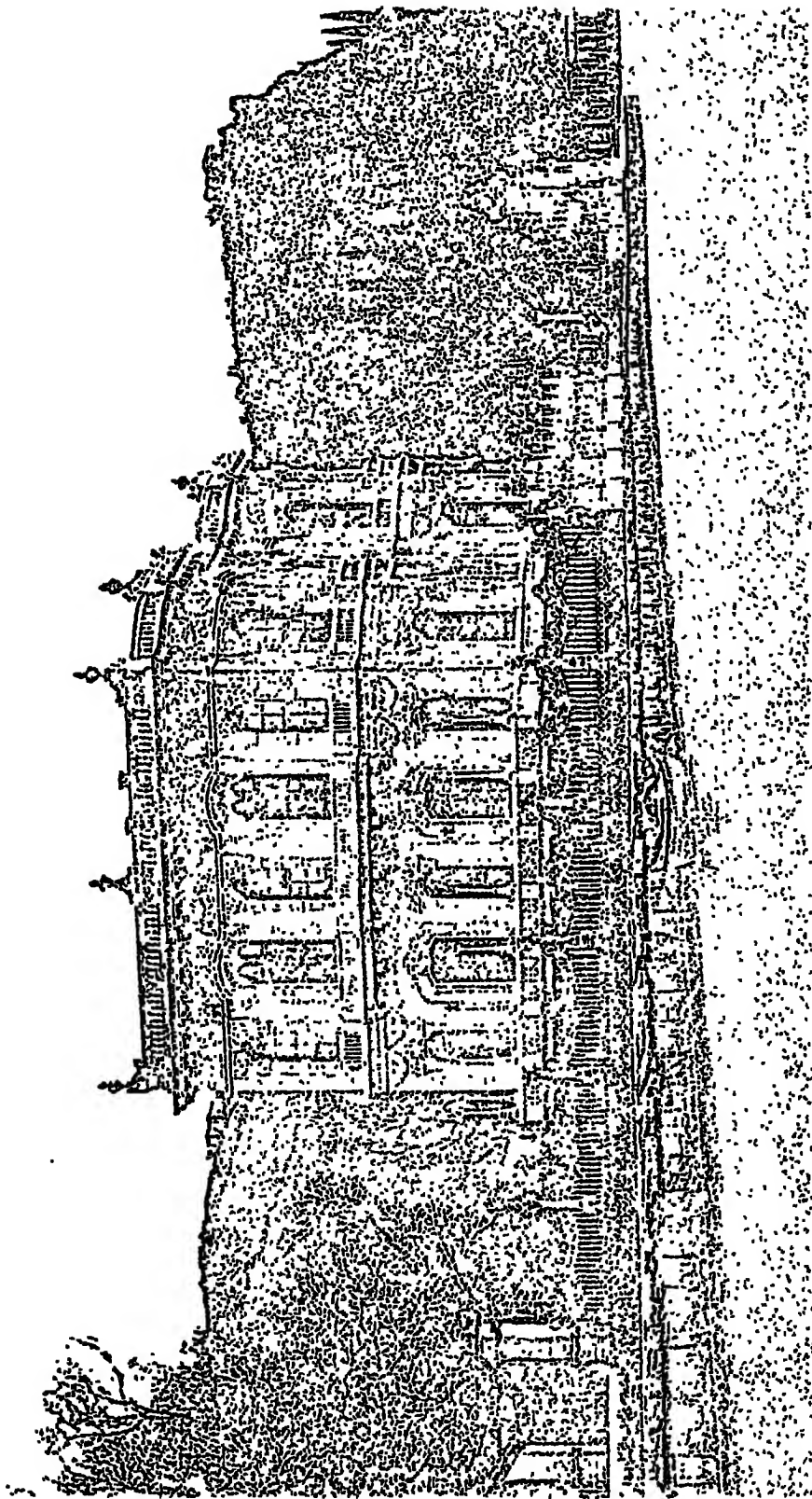
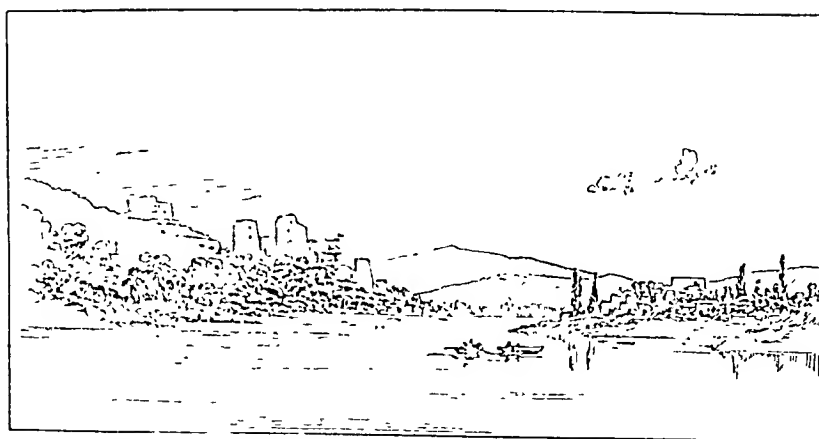


FIG. 61.—INTERNAL KIOSK OF WHITE MARBLE.

saline breeze, helped, probably, by the brightest of eyes gleaming from behind the greenest of lattice-work. There seemed a delicious spell in the sight of the rippling waves, and in the feeling of the balmy air, which forbade dull retrospection, and buoyed us all up with the keenest expectation for the beauty yet in store.

Crossing to the Asiatic side, we passengers were rewarded by a long look at probably the most beautiful, if the smallest, and very likely the most expensive for its size, of all the Sultan's residences (Fig. 64).

The pretty toy is wholly faced with sculptured white



Roberts' College.

Rumli Hissar.

Bosphorus.

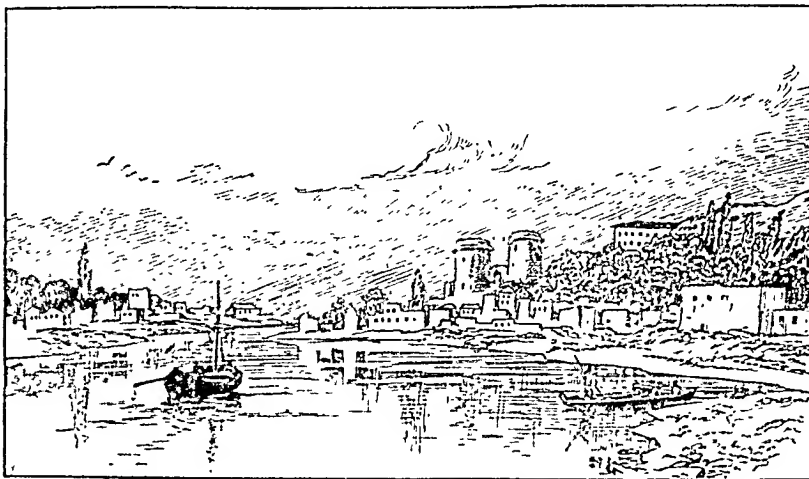
Anadolu Hissar.

FIG. 65.—LOOKING TOWARDS THE BLACK SEA.

marble ; and the beautiful gateway, the lamp supports, and indeed all the visible stone-work consists of the same expensive material, while the railings are of gilded bronze. Persons at home are often apt to wonder what becomes of all the money the Turkish Government borrows from time to time ; but any one seeing those magnificent Bosphorus palaces just alluded to, need have no difficulty in readily accounting for at least a few millions.

Still, backwards and forwards went the steamer over those pellucid waves, one time in Europe and quarter of an hour afterwards in Asia ; touching altogether at eighteen

different landing-places during the short voyage of seventeen miles. At length we approached the narrowest part of the strait, between the old Genoese castles Rumli and Anadolu Hissar, the channel being only eight hundred yards wide (Fig. 65). Tradition indicates this as the point where the Persian King Darius at one time fixed to cross into Europe with his army; and history marks it as the locality whence both Goths and Crusaders entered Asia. It was at this narrow but deep passage, also, that Mehemet II. found his way over, immediately before the siege and fall of Constantinople. That this particular spot should have



Anadolu Hissar.

Rumli Hissar.

Roberts' College.

FIG. 66.—LOOKING TOWARDS CONSTANTINOPLE.

been selected as the theatre of so many important military operations is all the more astonishing when we find, that the current continually rushes past from the Black Sea at the rate of five miles an hour.

The attention of the tourist is certain now to be directed to a large, rather plain-looking building, situated some little distance up the hill from the old castle of Rumli Hissar. This pile is a noble American institution, named after the founder, Roberts' College (Figs. 65 and 66). It is supported by voluntary contribution, and was designed for the thorough education of native youth. Large

numbers of young men have already benefited from its intellectual facilities; and it is said that this is the source

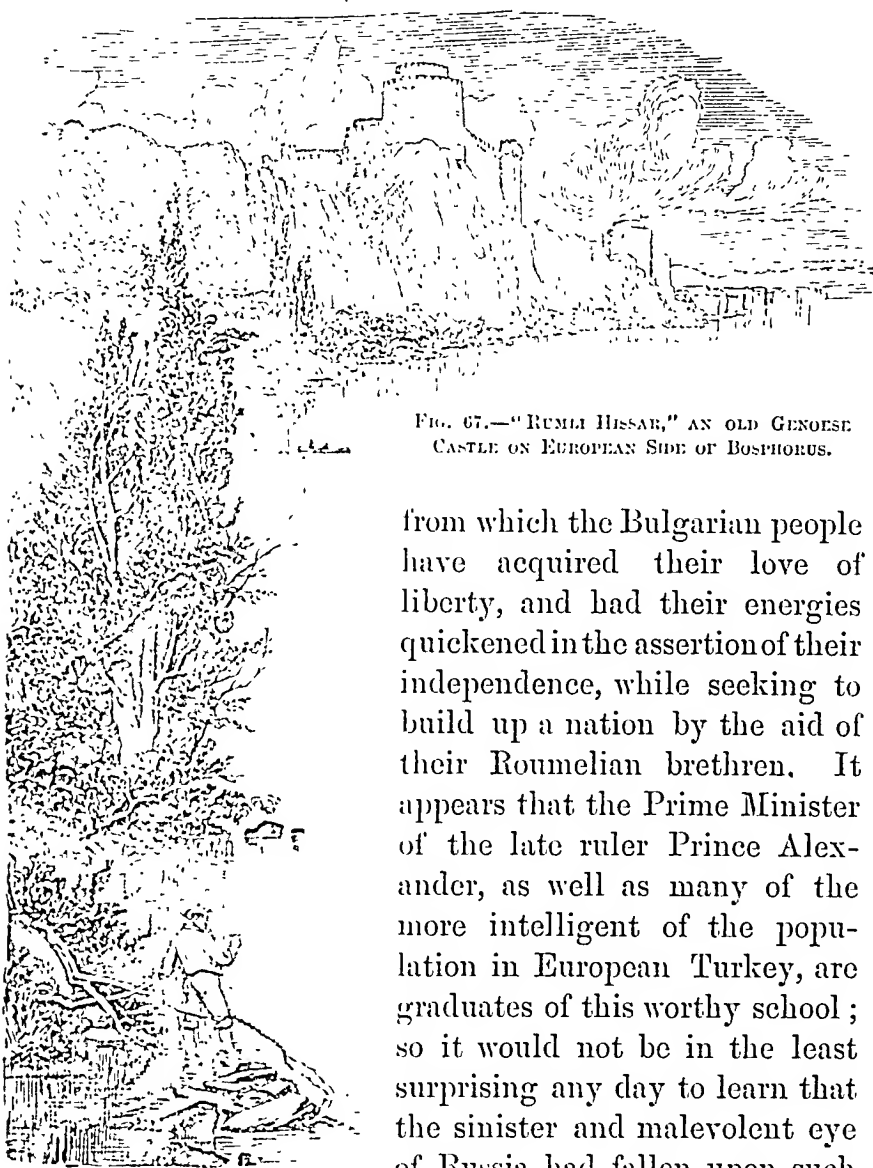


FIG. 67.—"RUMELI HISAR," AN OLD GENOESE CASTLE ON EUROPEAN SIDE OF BOSPHORUS.

from which the Bulgarian people have acquired their love of liberty, and had their energies quickened in the assertion of their independence, while seeking to build up a nation by the aid of their Roumelian brethren. It appears that the Prime Minister of the late ruler Prince Alexander, as well as many of the more intelligent of the population in European Turkey, are graduates of this worthy school; so it would not be in the least surprising any day to learn that the sinister and malevolent eye of Russia had fallen upon such a noble institution, and that

the Czar had demanded its suppression.

Safe from the turmoil of water just alluded to, in the beautiful Bay of Therapia, on the European shore, is the

anchorage for the yachts and armed vessels attached to the establishments of the various ambassadors, whose summer quarters are situated at one extremity of this lovely gulf. The more northern building is the house of the British Minister, a large brown, wooden erection of a warm sepia tint, standing on a point of land projecting considerably beyond the other official residences. From the deck of the steamer it offers rather an imposing aspect, but a closer inspection reveals its dingy shabbiness when compared with the magnificent marble palaces recently passed; and the combustible material of its structure raises the fear that

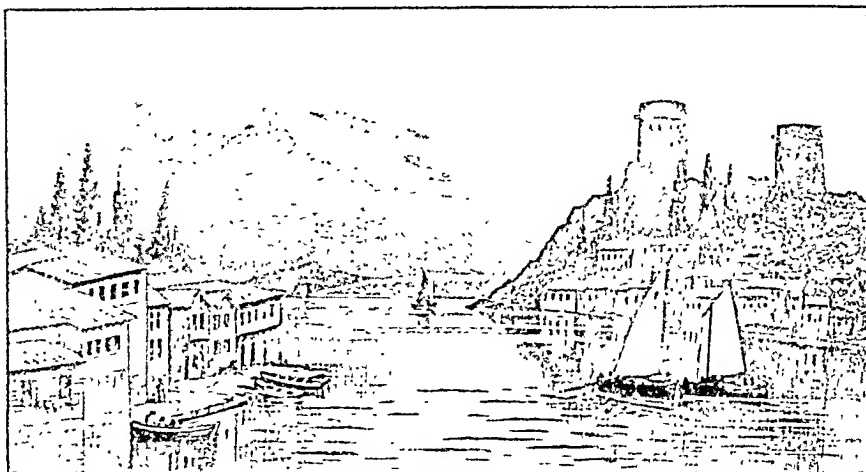


FIG. 68.—ANADOLU HISSAR AND RUMELI HISSAR ON BOSPHORUS, LOOKING TOWARDS CONSTANTINOPLE.

some morning the ambassadorial pile will have disappeared in smoke during the night. Meanwhile it will probably be remembered by politicians as having been the temporary home of the British Commissioner, Sir Henry Drummond Wolff (of whom 'A Legend of Westminster, October 1884,' remarks—

"To the front came another bold strider,
Of Lib'rals a constant derider;
Sir H. D. Wolff named,
For whom Chamberlain claimed
He'd be known as the 'lion's provider'"),

during the autumn of 1885 and for some time afterwards, from whence he made daily excursions to the Porte, to draw up, along with the highly-amused Turks, paper constitutions for Egypt, and issued invitations to his select little dances.

The adjoining bay, that of Buyukdéré (Fig. 69), is even more charming than the last. It is simply the extension of a beautiful valley, and is pronounced by nautical men as safe from all violent winds; hence the charm it offers to numbers of wealthy Constantinople merchants, many of whom live there all the year round. Besides the attractive-

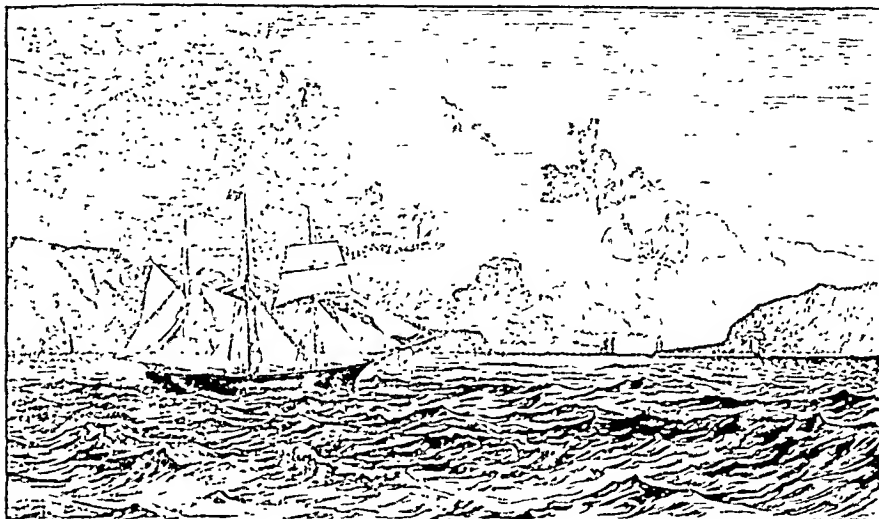


FIG. 69.—BEST ANCHORAGE—BOSPHORUS—ENTRANCE TO BLACK SEA—BUYUKDÉRE BAY—ANATOLA LIGHT.

ness of the view—right up into the Black Sea—and the salubrity of the neighbourhood, the bay affords a first-class refuge for ships of any size.

In 1832 a Russian squadron of twelve ships of the line anchored in this fine natural harbour, and landed ten thousand soldiers to protect the Sultan of the period against the victorious Pacha of Egypt, who had won the battle of Romeli.

Inland, the country is equally enticing, and good roads

render moving about, either on foot or on wheels, a pleasure as compared with the terrible penance either means of



FIG. 70.—GROUP OF TERROMAN GYPSIES, SIMILAR TO SOME SEEN AT THERAPIA.

locomotion becomes at Smyrna. To the west lies the great forest of Belgrade; and the reservoirs and aqueducts, which

collect and supply Constantinople with water, are in the neighbourhood.

On the present occasion we all landed at Buyukdéré Bay, the remaining few miles of the Bosphorus up to the Black Sea not being so interesting as those already passed, or sufficiently alluring to attract any member of the party thither. At this place some sketches were made, after which we walked back to Therapia, where, under a magnificent historical plane tree—said to be more than two thousand years old, beneath which Richard Cœur de Lion and his forces encamped in 1191 on their return from a crusade—our fine linen was spread and our luncheon enjoyed. Perhaps the last word of the previous sentence is hardly the most appropriate that might under the circumstances be used, as our relish for the refreshment was somewhat interfered with by the whining mendicancy of the women and children belonging to a tribe of wild Turkoman gypsies, who had pitched their tents near. These came begging and snivelling around; but as they appeared to be really in want of nothing except soap and modesty, they were all summarily dismissed, when further endurance of their proximity became impossible. The subjoined illustration (Fig. 70) gives an exact idea of the appearance and dress of those Bohemians. The grown-up women were ugly beyond description, yet some of the children had good features, and might even have been called pretty; but their good looks, such as they were, could scarcely be distinguished beneath layers of accumulated dirt.

After luncheon we made a tour into the forest to gain an insight into its botany, but the time at our disposal did not admit of the discovery of any novelties. On our return to the great plane tree we found that an enterprising little Frenchman had opened a hitherto unsuspected door in one of the partially-decayed limbs, revealing all the accessories of a well-furnished coffee-shop. In a trice he had a kettle over an oil-lamp stove, and in a very short time a service of

fragrant coffee and biscuits was handed round, of which we all partook. Sketches were then completed, particularly of the giant plane tree, which must in its day have been truly a monarch of the adjoining forest. The greater part of the trunk is entirely decayed away to below the surface of the soil ; but the branches which remain, springing, as they have done, direct from the ancient ruin, and towering to the height of more than two hundred feet, give a vivid notion of what the grand old patriarch must have been like when Richard the crusader took shelter underneath its shade.

The day was now far spent, and as our steamer was nearly due, we hastened to the pier at Therapia, rejoined it there, and were speedily taken back to our starting-point at Constantinople.

CHAPTER XXIV.

CONSTANTINOPLE TO DÉDÉ AGATCH AND SMYRNA.

THE trip upon the beautiful Bosphorus, as may readily be believed, whetted the appetite of every passenger on board for other excursions upon that charming strait. Accordingly, some of us visited separately the town and cemeteries of Skutari, where many British soldiers rest; some spent a day or two with friends at Rumli Hissar, at Therapia and at Kadikeui; while others enjoyed many hours at Princes Islands, in the Sea of Marmora.

One object of interest, however, none of us had as yet visited, indeed we were told that it was a waste of time going to the little village of Eyob, a few miles up the Golden Horn, as the Turks there were represented as being always hostile to Christians. Nevertheless a small party was made up, and we went. Having retained the guide, Moses, for the day, we took a steamer at the upper side of the Bridge of Boats, and soon became interested in the busy scene around. A little way along the Golden Horn we passed near a number of serviceable-looking war-ships of both ancient and modern type;* also a fleet of armour-clad rams moored with their sterns towards the shore and their stems chained to buoys. Some distance from the latter, further out in the creek, a row of guard-boats, covered

* According to some English newspaper correspondents, writing at the date when the Servian invasion of Bulgarian territory seemed imminent, when the Turkish authorities ordered out some of these war-ships to carry troops from Asia Minor to Roumelia and Macedonia, they could not be used for lack of repairs.

with deck-houses, were anchored. These sentinels were placed to prevent any access to the ironclads from the creek. On the same shore stand a large number of Government buildings connected with naval purposes, and there was an air of activity pervading the neighbourhood which seemed to indicate that the Turks were not neglecting their fleet. After somewhat less than an hour's sailing, during which the Sweet Waters of Europe, as the creek beyond the bridges is called, was crossed and recrossed several times to meet the convenience of passengers at the various little wooden piers, we arrived at the village of Eyob, otherwise "Job," and walked leisurely through its streets to the hill beyond, where a noble view of the vicinity is obtained. This place possesses the unique attraction of a beautiful mosque, wholly faced outside and in with white marble, but within which, it is said, no Christian has ever been permitted to enter. In it are preserved the *sanjak-sherif*, or Mohammed's banner; likewise the sword of Osman, with which each sultan is invested on his accession; a ceremony as suggestive to the Turks as a coronation is to us. It was of little use, we thought, applying for admission where, it was said, the Prince of Wales had been refused; accordingly, we simply looked in at the jealously-guarded gate in passing, and proceeded to the hill, used as a cemetery, to enjoy the view. The day being hot the climb among the tombstones proved fatiguing, but the beautiful panorama seen from the top was well worth the exertion. At our feet rose the pretty white marble mosque towering over the creek, with the grim, black war-ships on the opposite side in the dim distance. Beyond these rose the buildings of beautiful Pera, the less imposing structures of Galata and Stamboul, while far to the right and left could be seen a crowd of Mohammedan temples dominated by the grand mosque of St. Sophia. The tombs themselves offered but few attractions, as Turkish taste in mortuary matters is wholly different from European. Carved and inscribed marble tablets were lying or nodding about at

all sorts of angles, and many of them were prone on the ground. A Turkish mourner seems to grudge no expense in the erection of a memorial to the dead, but the moment the monument is finished its decay begins, as no further care seems to be lavished upon the structure. One very humane feature of most of their places of sepulture consists in the provision of a little hollowed-out trough to contain water for stray dogs. Why they should be so considerate towards animals they affect to despise so much, and with which the older Moslems used never to be tired of comparing Christians, is one of those mysteries which still remain unsolved. On our way back we took another peep inside the gate of the marble mosque, but Cerberus, aided by a multitude of veiled women and children, was still on the watch, so that our curiosity remained unsatisfied, and we had to return to the ship, pleased certainly with the trip and the view, but unable to boast of having effected an entrance.

Although none of us were satiated with our fortnight's gadding about, or tired of frequently staining the paper of our sketch-books, the period at length arrived—and we felt it to be much too soon—when the fiat went forth that the wire cables must be unshackled, and that our steamer must proceed to the coast of Roumelia. While this releasing process was going on, an enthusiastic young lady on board seemed to suffer in her endeavours to arrange in her diary the names and order of the places near Constantinople she had seen or visited during the past few days; and it was in assisting her that I became aware of the quantity of work we had really accomplished. Her notes had got a little muddled in referring to the Bosphorus, where there were so many crossings of the strait; but after a little patience the puzzle was disentangled. It was found to every one's amazement that, counting both shores, we had seen, closely inspected, or visited during our stay of a couple of weeks, no fewer than thirty-two towns and villages.

Once more, then, the steamer was emancipated from buoyhood, and on the afternoon of the 27th June the screw commenced to revolve. Seraglio Point was rounded; Makri Kivi, near Stamboul—devoted to the manufacture of Government cannon and gunpowder—was quickly passed; San Stefano, the most distant suburb of the capital, gradually disappeared from view into the rippling wavelets: and the sun set amidst all the superb glory which heralded its rise and our arrival.

The return voyage along the Sea of Marmora and through the Dardanelles differed in no degree, except a change in some of the passengers, from the outward tour. To be sure there was a stoppage at Rodosto, of about four hours, to take in grain and canary seed; and next day I had the duty of conducting the morning service in the saloon. This occurred in the vicinity of the pretty white marble island of Marmora (Fig. 55), and before the steamer got as far as the important town of Gallipoli (Fig. 54). Most of the passengers attended, but the crew, having been at work most of the previous night, were excused. The service was celebrated with the assistance of a passenger, who read one of the lessons and a hymn, and those present seemed interested.

Towards evening the vessel had got into the Archipelago, and, ere darkness set in, passed the grand, rugged pile of Imbros, a mass of uncouthness half concealed by heavy, lowering clouds. Although presenting to the view the roughest possible outline, as seen in the waning light, this island is by no means barren or unfruitful. Its area is about 116 square miles; its highest summit rises above the sea to the height of 1845 feet; the whole is well wooded, and its valleys produce an abundance of oil, cotton, corn, and grapes. From the earliest period Imbros has been subjected to frequent and sweeping political changes. Ancient history informs us that for a time the islanders remained independent, and were governed by their own laws; but afterwards they fell into subjection

successively to Persia, Athens, Macedonia, and to the rulers of Pergamos, and finally became a Roman province; while, for the present, the territory forms a part of Turkey.

Scarcely had Imbros been passed than the dim outline of the mighty red marble island of Samothraki (Fig. 72) was seen, and as the steamer approached nearer, although the night was further advanced, its distinguishing features were quite visible. Although enjoying only a small area, this island possesses the loftiest mountain in the whole Greek

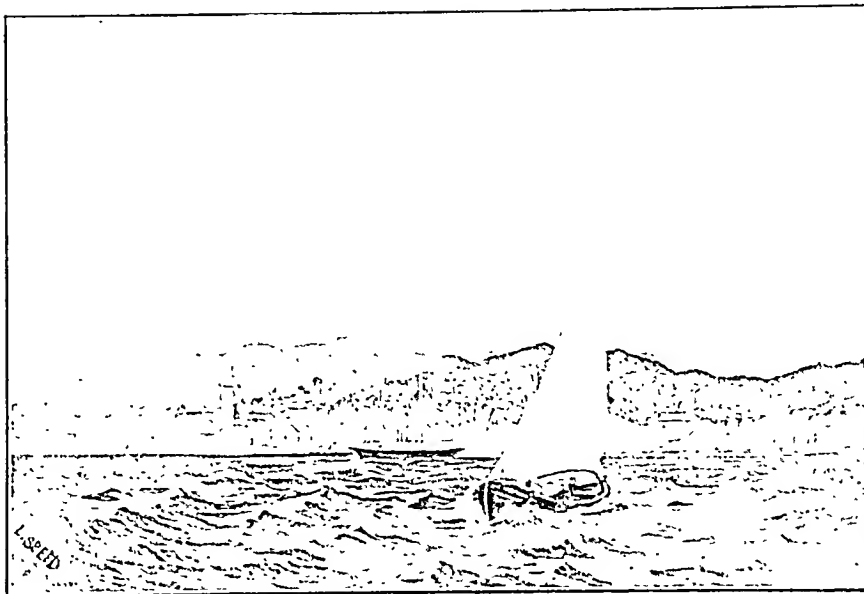


FIG. 71.—DÉDÉ AGATCH, ROUMELIA. TERMINATION OF THE ADRIANOPLE RAILWAY.

Archipelago, the summit of which, towering to the height of 5248 feet, when glistening with snow, is easily seen from the plains of Troy above the intervening highlands of Imbros. As Samothraki does not possess a single good port, although not devoid of fair anchorages, the island has never proved of much value as a commercial possession, and its history is unimportant. Anciently, however, the religious rites practised there were held in the highest veneration: and Suidas states that the general belief was

that those who visited the island, and had been initiated into the mysteries, were protected against all future danger; but in what these mysteries consisted, beyond the general knowledge that they were instituted in connection with the gloomy adoration of the Cabeiri, the learned seem as yet unable to give any information. It is to this imposing island that allusion is made under the name of Samothracia in Acts xvi. 11: "Therefore loosing from Troas, we came with a straight course to Samothracia, and the next day to Neapolis."

Black night now rapidly succeeded, but guided by the

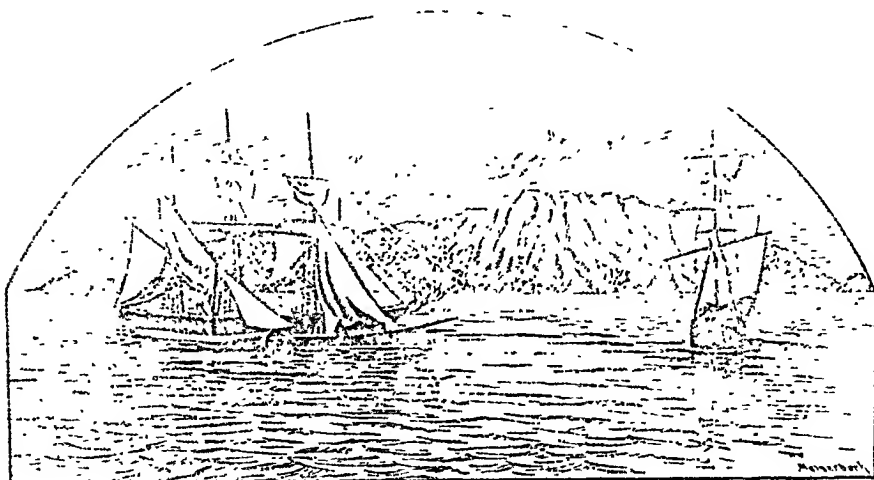


FIG. 72.—SHIPS LOADING GRAIN IN THE BAY OF DÉDÉ AGATCH, SAMOTHRACI ISLAND.

one brilliant eye glimmering from the lighthouse at Dédé Agatch, on the coast of Roumelia (Fig. 71), the steamer at length dropped her anchor in the open bay about a mile from the beach.

. In the midst of torrents of rain the following morning, which proved most refreshing after the dust and heat of Constantinople, this outlying corner of Turkey looked verdant and pleasant to the eye. Dédé Agatch forms the present seaside terminus to the system of Roumelian railways, already completed to Adrianople and Philippopoli. These are intended to penetrate to a point on the Danube

near Belgrade, where a junction will ultimately be effected with the Austrian lines. When these works are complete, it is expected that this port may become of some value for shipping wheat and other produce collected from the rich agricultural provinces through which the various railways pass. In the meantime, however, there being no depth of water or protection for ships inshore—only a small harbour, built by the railway company, possessing seven feet of water, used by fishing-boats and lighters—large vessels must anchor (Fig. 72) at some distance from land with steam up, ready to slip out to sea on the shortest notice, whenever the south-west wind blows, which it often does with great violence. At first sight the critic will feel inclined to question the judgment of the engineers who fixed upon this particular spot for a commercial port, and his criticism, however adverse, will not be far wrong. It appears that a few years ago plans were submitted to the Turkish authorities in connection with the extension of the line from Adrianople to a point on the coast, and the terminus chosen was the thriving town of Rodosto, on the Sea of Marmora, situated about seventy miles from Constantinople, an arrangement which would have proved convenient for shipping, and would have possessed the additional merit in Turkish eyes of placing the terminus thoroughly under Ottoman control. Meanwhile other eyes had lighted on the proposed extension, and restless, plotting brains were at work to secure some advantage for Russia at the expense of the “Sick Man.” Through Muscovite influence and perseverance, aided, doubtless, by Turkish apathy, ignorance, or the corruption of some of the officials, the line was diverted from its south-eastern course after passing Adrianople, and taken by a south-westerly route to the northern part of the Greek Archipelago; so the terminus, instead of being built at Rodosto, as originally intended, is now on the Roumelian shore, opposite the island of Samothraki, at the aforesaid unhealthy, obscure, little village of Dédé Agatch. The new line of railway has not been long in operation, yet

sufficiently so to indicate that a large shipping business in cereals and other agricultural products may be expected whenever a safe port has been constructed, in which sea-going steamers can load. Now, should the permanent separation of Eastern Roumelia from Turkey be accomplished, there will be additional reasons why a good and safe harbour should be immediately constructed at Dédé Agatch, as vessels seeking loads at this place, by saving the tolls, dues, and risks of the Dardanelles and Sea of Marmora, will be well able to disburse the charges of the new port. Doubtless, indeed, their very numbers will encourage the Roumelian authorities to proceed with the work, and ere long the hungry mouths of Europe will be provided with another granary, bringing them nearer a condition of independence with regard to American and Russian supplies. While Russian cunning and Roumelian impatience are thus offering a boon to the ships of all nations, it is well not to overlook the political aspect of this matter. Russia has already shown that the range of the Balkan mountains forms no insurmountable obstacle to the invasion of Turkey, and as that crafty, unscrupulous, and untrustworthy Power has long been feeling about for a safe opening into the Mediterranean from which she might issue at will to agitate and torment all Europe, she probably thinks she has gained the reversion of one at Dédé Agatch. In view of such an event, it is well within the range of probability that Russia will now carry on her plotting against the nations of the Balkan Peninsula with redoubled vigour, in the hope of soon swallowing up both Bulgaria and Roumelia. When this act of wholesale deglutition has been successfully performed, her next move will likely be the extension of the Adrianople line to Lake Bori, only nine miles distant, most conveniently situated for the construction of fortresses and arsenals. These completed, Russia will then doubtless consider herself able to assail Constantinople simultaneously from the Black Sea and Mediterranean, and ready to absorb Greece at her leisure. It need hardly be added that a game of this kind

can be spoiled only by united Europe, as well as any sinister designs of Austria upon her immediate neighbours. Undoubtedly, the surest way to checkmate both of these faithless despotisms would be to encourage the formation of one solid monarchy of all the Balkan nations under Prince Alexander, which would interpose an effectual barrier to aggression from both sides during a long vista of coming years.

Regarding Dédé Agatch itself (Fig. 71), there is little to be said as yet, as there is nothing in the neighbourhood offering any attraction to the casual visitor. It is situated about nine miles to the north-west of the mouth of Lake Bori, and as the village stands on low and somewhat swampy land covered in places with thickets of *valonia* oak, the salubrity of the site is more than doubtful. Indeed, a Constantinople newspaper of the 20th August, 1885, stated that sickness was then spreading, particularly in the adjoining village of Keuylu, where fever and croup were cutting off numbers of children daily.

The work of loading the steamer, chiefly with Indian corn, having been several times interrupted by heavy rain, a delay of over three days occurred, and yet no one on board seemed to regret it. The circumstance enabled the amateur artists and writers of travels among our number to add somewhat to their rapidly accumulating stores of sketches and piles of manuscript. Among other subjects, we all tried our best to chain the pretty island of Thaso to the pages of our sketch-books ; but it was so distant that between the showers little could be made of it, even with the aid of a good glass. This is the most northerly of the isles in the *Ægean* Sea, and is described as having been exceedingly fruitful in classical times, but has since acquired a character of barrenness, although it still exports oil, honey, and timber. At one time its marble quarries and its mines of gold and silver ranked high, but these seem long ago to have been abandoned.

On the evening of the 1st July the steamer, having

taken in all the cargo there was to be had, left for Smyrna. Before dawn the following morning our artists were at work. The course sailed took us near the mysterious yet beautiful island of Mitylene, looking stern and grand in the early morning haze, before a single sunbeam had tipped its rugged glens with gold. Anon a bright orange began to irradiate the heavens, and to light up, seemingly for our especial benefit and enjoyment, the entrance to its noble harbour of Oliviri. This magnificent island was known in ancient times as Lesbos, and its capital city as Mitylene, so named after the daughter of Macareus, a former king; and it has always been held in high repute for its fruitfulness. It was an ancient and long-enduring seat of learning, and, in company with Rhodes and Athens, produced and educated many of the distinguished men of Greece and Rome. Among its great names were Pittacus, one of the seven wise men of Greece, who made the wholesome law that any fault committed by men while intoxicated should be doubly punished; Alcaeus, a lyric poet and lover of Sappho; Sappho, the chief poetess of antiquity; Terpander, another lyric poet and musician of such skill that on one occasion he quenched a Spartan tumult by the tones of his lyre; Theophanes, the historian, and others, all natives of this island. Presently the terribly volcanic island of Khios, nearly opposite Mitylene, was added to our sketch-books.

This unsteady rock is twenty-seven miles long by seven miles broad at the centre, and bulges out like a dumb-bell at both ends—to fifteen miles broad on the northern, and twelve miles at the southern extremity. It is composed chiefly of red marble, culminating in a giddy peak named Mount Elias, whose summit is 4157 feet above the sea. During the 3rd April, 1881, this island was overtaken by an earthquake, which destroyed nearly the entire town of Kastro, situated on its eastern side, and wrecked forty-five villages, amidst the *débris* of which four thousand persons perished, and large numbers were wounded or maimed for life. Nevertheless, the recollection of the calamity speedily passed

away, and the island is again as well peopled, and seemingly as prosperous as formerly. Khios, sometimes written Chios, and as often Scio, is allowed to be one of the most beautiful islands of the whole Archipelago. It lies about seven miles off the coast of Asia Minor, at the entrance to the Gulf of Smyrna, and has no superior in the *Ægean* Sea for fertility and productiveness. Silk, figs, cheese, wool, gum-mastic, olives, citrons, and grapes are its principal products, and it possesses a good harbour.

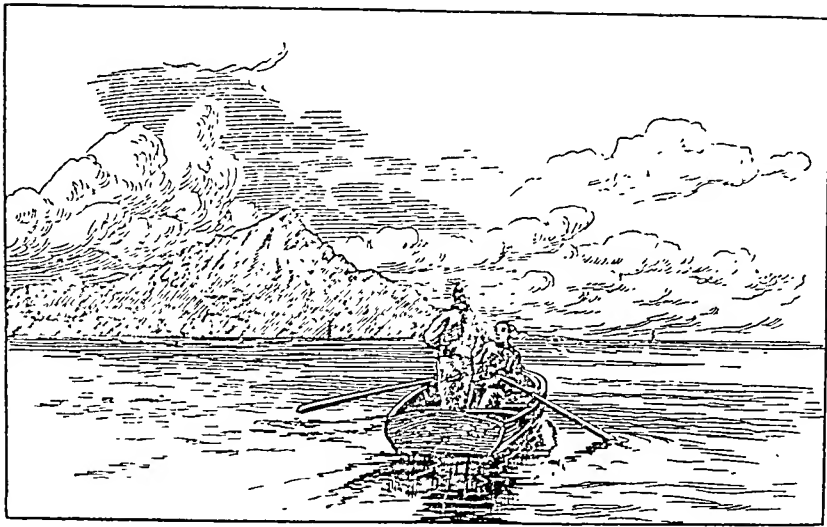


FIG. 73.—ISLAND OF KHIOS.

The two islands just named form the sentinels, as it were, of the Gulf of Smyrna, so that, after they have been left a short time behind, the tourist is not usually very long in reaching the principal port in Asia Minor. Accordingly, in the course of a few hours our steamer was again moored close to the quays of Smyrna, and the passengers who had friends ashore to see, or objects of interest still to visit, seized the opportunities offered during the next few days, ere the voyage home commenced.

CHAPTER XXV.

SMYRNA AND ITS NEIGHBOURHOOD.

ALLUSION has already been made in Chapter XV. to some official statistics, published in the Smyrna papers of the 9th May, 1885, by His Excellency Hussein Hilmi Effendi, Secrétaire Général du Vilayet d'Aïdin, relative to that part of Asia Minor in which its chief sea-port is situated. It there appeared that the population of Smyrna was then estimated at 52,196 Mussulmans, 71,083 Greeks, 4498 Armenians, and 18,632 Jews, making together a total of 146,409 persons; so that the visitor to this important city, composed as it is of such varied human elements, will naturally expect many interesting sights within its limits, or in the immediate neighbourhood. Nor will he be disappointed, should the time at his command be parcelled out with economy and care, and the period of his visit prove not unfavourable to walking about. It is true that the handbill issued by the Cunard Company at Liverpool, promises him only a single day at Smyrna on the outward voyage, and presumably the same period on the steamer's return from Constantinople; but in practice, several days, and sometimes more than a week, are really available. Such being the case, by a little careful management, the judicious choice of places to be visited, and taking local advice as to conveyances, the traveller may generally overtake a fair amount of work within the allotted span.

Suppose his ambition does not prompt him to leave the city at once, like the enthusiastic antiquarian lady mentioned at the end of Chapter III., the initial obstacle

met with consists in the difficulty and fatigue of getting through the streets, as all except the Marine Parade, Frank Street, and one or two others, are usually in want of repair, and are devoid of side paths. In a word—and after perusing some further remarks on the subject in Chapter XXVII.—the reader will see that the means at present available for getting over the ground in the streets of Smyrna are not efficient, and that sight-seeing there cannot be accomplished comfortably or with any degree of speed, so the tourist is driven to depend chiefly on his own natural power of locomotion, and as a result he sees less of this great city within a given time than would satisfy him in any other important town in Europe.

Fortunately for the traveller in such a badly-paved place, the objects likely to attract him are not numerous, as Smyrna is eminently commercial. There are the usual Mohammedan mosques and Greek churches, with here and there places of worship belonging to Protestants and Roman Catholics; there are handsome Government edifices, the Governor's palace, a barrack capable of housing ten thousand foot soldiers, besides cavalry and artillery, hospitals, schools, colleges, museums, bazaars; places where dervishes (Fig. 74), good-looking and otherwise, twirl and dance; and shops by thousands, the inspection of which will doubtless yield many visitors much pleasure; but of the truly artistic and attractive sights characteristic of London, Paris, Edinburgh, and some of the old towns of Germany, Holland, and Spain, there are none.

Suppose, on the other hand, that the tourist's aspirations soar away beyond the streets, and would lead him rather to investigate and scrutinise some of the grand old relics of the past amidst the mountains, his desires can be much more easily gratified. Perhaps it is Philadelphia of the Apocalypse he would like to see. He can do so by taking the early morning train per Smyrna and Cassaba Railway, which reaches Alascheir, 105 miles distant, at 2.35. Devoting the afternoon to examining the ruins and making

sketches, he may on the following morning, if a good



FIG. 74.—GROUP OF DANCING DERVISHES.

horseman, and not afraid of considerable fatigue, ride over to ancient Sardis, twenty-five miles distant, add to his

artistic spoils, return before nightfall, and possibly next day be back on board his steamer at Smyrna.

It may be that a visit to weird Laodicea has taken possession of his imagination, and that to tramp over the wondrous ruins and slide down the marble terraces of Hierapolis form the summit of his ambition. In that case he will only require to patronise another line of railway, the station for which is easily reached by means of tramcars, which pass along the quays every few minutes from almost one extremity of Smyrna to the other. Getting into a carriage at the Point station on the Smyrna and Aïdin Railway at 6.40, he will likely reach the terminus, Seraikeuy, 143½ miles distant at 4.40 in the afternoon. At this place the obliging station-master will put the tourist in the way of procuring horses, a guide, and Turkish guard of soldiers—picturesque-looking fellows, like Figs. 46 and 75, with plenty of weapons all over them—at a moderate outlay, who can be ready the following morning, when all that remains of the ancient and interesting cities of Hierapolis and Laodicea may be visited in the course of the day. Leaving next morning by the 7.10 train, the traveller will have an opportunity of inspecting the vast remains of the city and temples at Ephesus, by halting at the wayside station of Ayasouluk (Fig. 44) about 1.40, hiring a donkey and guide, and after spending several hours on and around the spot once occupied by the great Temple of Diana, may rejoin the afternoon down-train between four and five o'clock. Thus, within a week, the passing tourist has the opportunity of visiting the sites of five of the "Seven Churches in Asia," and adding materially to his art delineations, for the future enjoyment of his friends at home. The other two spots mentioned in the Apocalypse—Pergamos on the river Caycus, and Thyatira, near a tributary of the river Hermus—are not so accessible, and therefore need not now be further alluded to, except to say that, as both are inhabited, the traveller can make sure of temporary accommodation at those ruins, which he cannot at Sardis or Laodicea.

It may so happen that neither of these more distant journeys can, on account of limited time, be safely undertaken. In that case there remain the pretty villages surrounding Smyrna, which may be visited. By means of the numerous little harbour steamers, short excursions can be made to either side of the bay—to Cordelio, where Richard Cœur de Lion spent some time about the year 1193; to the curious old Genoese castle, Sanjak Kalissi, which is supposed to protect the approach to Smyrna; to the hot springs near, known as Agamemnon's Baths (Fig. 11); to the most interesting industrial school for Turkish orphan boys at Karatasch; and to many other beautiful spots attainable by water. Only a few miles inland by rail, horse, donkey, or carriage, are the charming health resorts of Boudjah, Bournabat, Koukloudjah (Fig. 41), Diana's Bath—a magnificent natural fountain of pure cold water, the basin of which covers about three and a half acres—and many other enticing and picturesque neighbourhoods, all possessing features of the greatest interest, and each well worthy of a visit. It would be impossible within the limits of a work of this kind to direct attention to even a moderate number of the objects of interest around Smyrna, which an energetic traveller may see and examine during the week or so he may spend in port on his way to or from Constantinople, yet a word or two concerning the last four named may not prove unwelcome.

Boudjah is the only station on a subsidiary and picturesque single line of railway, branching off the main Aïdin road at a village owning the pleasing name of Paradise, and is situated five and a half miles from the Smyrna terminus. This subsidiary line is wholly up hill, is one mile and a half in length from Paradise, is worked one way entirely by gravitation, and is the property of Mr. Purser, the manager of the main line between Smyrna and Seraikeuy. Apart from the curious serpentine curveture of the rails, necessitated by the steepness of the hill, the eye is interested shortly after starting, at the sight of an ancient aqueduct

crossing the valley towards the fortress of Smyrna. Two series of very perfect arches, one above the other, remain, and are evidently of the Byzantine period, like the castle; but, unlike most similar works of antiquity, this one appears to have had no object or use, so far as has yet been ascertained. But whatever may have been its intention, it is at present a most picturesque object in the midst of a mountain panorama, at once beautiful and imposing. The village of Boudjah is prettily situated on a comparatively level mountain shoulder, and commands extensive views in various directions. Being high, it is favoured with plenty of pure and even cool air, which makes it a favourite resort for many of the Smyrna merchants. Indeed, the temperature is so much lower at all times than that of the great city at its feet, that orange trees, which grow and fruit so magnificently in Smyrna, are there kept alive only with considerable care. But if the orange does not find in Boudjah a congenial climate, the cyprus seems to revel in its rich soil and pure atmosphere, as nowhere are more splendid specimens of this grand yet gloomy tree likely to be seen. Where so many tall monarchs of the forest abound, there must exist a wealth of legends waiting to be gathered by any one with sufficient time and a fair knowledge of the Greek and Turkish languages. In the case of the writer, two or three visits proved inadequate for this purpose, but the cursory examination of a built pit of profound depth full of water covered with a massive tangle of ruins, and known in the neighbourhood as "Jacob's Well," suggested a line of inquiry, which perhaps some other traveller or intelligent denizen of Boudjah may some day be in a position to satisfy.

Bournabat, like Boudjah, is also the terminus of a short subsidiary line, branching from the Smyrna and Cassaba Railway. It lies in a different direction, and is the summer resort, as well as the only home, of numbers of the middle and upper classes, whose daily duties are connected with Smyrna. Although built on a slope some little height

above, and within sight of the bay, Bournabat is not so airy as the last-named health resort, yet is in no way inferior in salubrity; and it possesses the advantages of good educational facilities for children, a larger selection of shops, a wider circle of society, and the greater safety against brigands and petty marauders, which a more numerous foreign community naturally confers. The population is considerable, and consists, in addition to the important European residents, of Greeks, Armenians, Turks, and Jews, all of whom seem to get on fairly well together, as the very small police and military forces kept in the town testifies. Indeed, the Turkish authorities throughout Asia Minor seem to interfere remarkably little with the domestic arrangements of the numerous nationalities congregated together under Mahomedan protection. Provided they keep the peace with one another, and give no offence to the dominant race, each tribe is allowed a much wider latitude in regard to the infliction of punishment within its own circle, than would be granted in Europe, as the following anecdote will show.

It appears that the Jews of Smyrna have among themselves a strict law forbidding the use of tobacco to the young. One evening, while the writer was in Bournabat, three Jewish lads were indulging in a quiet whiff in the outskirts, when they were unexpectedly surprised with their cigarettes by a Rabbi. Two of the culprits were dextrous enough to conceal their weeds, and escape detection, but the third was caught with the article fragrantly smoking between his lips. He was unresistingly taken immediately to Smyrna, arraigned before the dignitaries of the synagogue, and condemned to the usual punishment, which, to our ideas, was out of all proportion to the alleged crime. The Rabbi opened the Talmud, and read the supposed warrant for the infliction which was to follow; the young man, then stripped naked, was placed inside a stout bag, and was suspended from the ceiling a little way above the floor. As the Rabbi paused from time to time in his reading, an official armed with a

stout leather thong belaboured the unfortunate Israelite in the bag with all his might, and at intervals another attendant, bearing a huge lighted candle composed of some peculiarly offensive description of tallow, dropped some of the hot grease over the criminal. In this manner the young Jew was alternately strapped and basted until, in the opinion of the Rabbi, his crime had been purged away. As might be expected, this little drama was not conducted in silence, and the cries of agony and protestations of repentance were heard considerably beyond the walls of the torture-chamber, yet the Turkish officials declined to interfere. It was no affair of theirs, they said, and so the matter rested.

Bournabat is so irregularly built, so pervaded with high walls and tortuous passages, that it is the simplest thing in the world for a stranger to get lost in its intricacies, and to wander about for hours towards sundown before recovering his whereabouts. This should render the little town a mine of wealth to the artist, as its crooked lanes, its tall cypresses, its abundant foliage of every kind, its densely-populated bazaars, its picturesque sepia-coloured shops, its frequent strings of loaded ass-led camels, and its amazing variety of costume, make up a series of ever-moving tableaux which can never be forgotten by any one who has witnessed the scene. Although not the focus of any great manufacturing industry, Bournabat presents at all times to the eye of the inquiring stranger a multitude of minor operations and trades being prosecuted in its streets. Cabinet-makers, tinsmiths, workers in brass and iron, are always busy; not to mention the numerous class who minister to the food wants of the inhabitants, as well as those who supply drinks, refreshing and otherwise. Its spiritual requirements are not neglected while those of ordinary life are thus provided for, as there are churches belonging to the Episcopal, Roman Catholic, Greek, and Armenian forms of faith, all with their congregations of regular attenders. Probably, however, the chief claim to notice Bournabat at present offers consists in the circum-

stance that it is the residence of a gentleman, a loyal British subject, who for more than thirty years, as noted elsewhere in these pages, has probed and combated the various baffling silkworm-diseases, and resuscitated a grand industry among the people which had long been practically defunct. It is to Mr. John Griffitt's sericultural factory that the future passing pilgrim to this little town will turn, in order to see with his own eyes how one of the most marvellous callings, as well as one of the oldest, is now conducted under the eye and finger of science.

Within a forenoon's donkey ride of Bournabat are two pretty lakes hidden away among the mountains, one occupying rather higher ground than the other. The upper one is known as the Lake of Tantalus, and measures about a quarter of a mile in length by some two hundred and twenty yards in breadth. It is exceedingly deep, and full of fish, its overflow issuing in a natural manner into that below. There appears to be no speciality connected with this sheet of water, which could recommend it to even the most vivid imagination as the scene of the punishment of the son of Jupiter and Pluto, yet tradition points out this as the spot where the wretched Tantalus, up to the lips in water, could not assuage his thirst; placed close to bunches of the most delicious fruit, yet might not taste; and although threatened to be crushed by a huge overhanging boulder, yet had no power to escape. Apparently to elench the truth of this story and its scene, tradition further indicates the situation of the tomb of Tantalus as being a little nearer Bournabat. The other lake is rather larger, but appears to have been left by the mythologists without a name, or even the ghost of a legend to throw a halo of interest over its ripples. Perhaps for this reason modern sympathy, but more likely a sense of utility, has led to its being converted into a reservoir for supplying Bournabat with water.

Koukloudjah (Fig. 41) is a most picturesquely-situated village, nestling on the side of a hill rather nearer Smyrna

than either of the other two. Before Boudjah and Bournabat became so fashionable as they are now, Koukloudjah was the favourite resort in summer of the Smyrna European merchants, but during the Crimean war an event occurred which gave this truly beautiful spot a sinister name, and ruined it for a time as a place of leisure. A well-known Armenian gentleman of Bournabat was at that time courting a Greek lady of Koukloudjah. One day when visiting his sweetheart, having prolonged his leave-taking until rather late, he was pounced upon by a notorious brigand of the name of Catterdje Janni, and carried off to the adjacent crags. There the unfortunate man was held to ransom, and only released after violent threats and the payment by his friends to the captor of the equivalent of £3000. It is true this ruffian was, many years afterwards, secured by the Turkish soldiery, and chained in a vault in Smyrna, where he still remains untried; but the money was never recovered, and for years the character of the place was entirely subverted. From this village the distant view is simply enchanting. In the immediate neighbourhood of the house from which the writer made a sketch, the land seemed entirely devoted to grape and olive culture; a little further off the panorama of Smyrna from the old Byzantine castle to Point station was spread clearly out like a beautifully-illuminated lantern slide; then came the rich blue waters of the bay, with pretty Cordelio resting on the further shore; while the background was filled up by the islands and the mountains of the Anatolian Peninsula. Probably few fairer prospects could be obtained anywhere, and as for salubrity, although not far from a fever-stricken district, it has frequently proved a refuge for the Smyrna people from the ravages of cholera, when the great city was writhing in the grasp of that deadly disease. The beautiful, well-wooded plain, dotted all over with blood-red Judas trees, which the eye rests upon with such pleasure when the gaze is directed towards Bournabat, about seven miles off, although now divided among a number of proprietors,

was once the sole property of Kiatib Oglu (son of the clerk, otherwise Clarkson), a former governor of Smyrna in the good old days, which many people foolishly regret. Oglu was a terrible tyrant, and, like the British Conservative of the present time, had no sympathy with popular aspirations. In the course of his official career he managed to absorb the monopoly of exporting silver entirely to himself during 1816 and subsequent years, and in consequence became enormously rich. Unfortunately for himself, his ostentatious style of living at length attracted the notice of envious Constantinople authorities. Plots were hatched against him, and he was finally strangled, the tragedy forming the subject of what is represented as being one of the finest of the modern Turkish ballads.

The last of the four pretty spots alluded to at an earlier part of this chapter as worthy a visit from the tourist, is the Bath of Diana, near the village of Mersenliqui on the Smyrna and Cassaba Railway. Leaving the railway carriage at Mersenliqui, the tourist walks along the margin of a canal-like stream for about a mile, until the gate of a large establishment—burnt-down paper works—is reached. The stream is believed by some authorities to be the river Meles of Homer, formed by the overflow from the fountain within the enclosure.* At the gate sits a Turkish porter or guard, but there is no difficulty thrown in the way of strangers desiring admittance. The portion of the burnt-down works nearest the fountain has been of late repaired, and is now used as a flour-mill, which is driven by a powerful turbine wheel. To such a common purpose has this great relic of antiquity descended. The bath is an irregularly circular-shaped pond, covering about three and a half acres, but with portions concealed under a dense growth of tall reeds, and pure cold water bubbles up all over its area. It is surrounded with the remains of walls, fragments of arches, scraps of broken marble columns; but, except in the middle, the water is shallow, although at

* *Vide* footnote to p. 52, Chapter IV.; also p. 215.

one place it is alleged to be fifty feet in depth. Over the bottom are strewn large blocks of squared stone, and a few prostrate marble pillars; while, according to the miller's account of what he had seen from a boat, the central chasm shows the remains of a handsome pillastered terrace far under the surface. Some few years ago, when engineers were arranging the exit for the water for the adjoining mill-wheel, a magnificent life-sized marble statue of the goddess Diana was found in the mud; hence the name by which the fountain is now known. This work of ancient art was of course promptly claimed by the authorities, and is at present in the Sultan's private museum at Constantinople. Latterly another statue of red terra-cotta, representing Bacchus, had been found in a slightly-mutilated condition, which the Turks seem not to have considered valuable; accordingly, it has been allowed to remain, and forms a corner decoration in one of the houses on the spot. To the inquiring stranger it will always seem curious that this remarkable natural fountain has not been utilised in some different manner by one or other of the wealthy Turks, Greeks, or Armenians, of whom there are many in Smyrna. What a noble ornament, for example, it would make in the policies connected with any residence; and what treasures of art the possessor of an estate which included it, might find by temporarily draining off the water and setting a few labourers to dig. There is a reason, however, which hitherto has proved sufficiently deterrent—a reason which the practised eye sees in the wan looks, in the hollow eyes, and in the ghastly greenish-yellow complexions of nearly every one in any way employed at or near the place. It is a fever-haunted spot. Exhalations, doubtless, are constantly rising from the earth, particularly at night, which, breathed for even a short time, seem to wither up life and produce premature decay. This is why those magnificent fountains have sunk to such base uses, probably ever since Diana's temple, which once adorned the pool, was shattered by an earthquake.

Returning from the inspection of these four interesting

places, the traveller may find that he has still time to see a little more of Smyrna ere his steamer sails, and to add to the notes in his diary. When it is recollected that this is one of the most ancient and at all times one of the most important cities of Asia Minor; that it is the only one on the western coast which has held fast its name and repute for more than 2600 years; that it has been possessed successively by *Æolians*, *Ionians*, *Lydians*, *Macedonians*, various masters during the Middle Ages, and *Turks*; that it has continually progressed notwithstanding all its vicissitudes, and is at present more flourishing than ever—when all these circumstances are remembered and taken into consideration, the intelligent tourist may well be excused, if he spends his last few hours hunting up information on a subject which has employed distinguished pens out of every nationality in Europe.

The tourist's time will now have become probably almost exhausted, yet he should endeavour to see, if possible, before he bids adieu to Smyrna, a most interesting establishment called the Deaconesses Institution. It was commenced in the year 1852 by a Prussian lady named Mina Grosse, for the education of young girls, and boys under ten years of age. For her labours this amiable philanthropist received and wears a decoration sent her by the Emperor of Germany. There are one hundred and sixty children under her care, who are paid for by their parents, and forty little waifs, who are being brought up free. The establishment is large, handsome, and beautifully kept, the central garden, wholly surrounded by the buildings, being a picture of taste, variety, and semi-tropical beauty. The rooms and dormitories are spacious and commodious, and the children look like a laughing troupe of robust fairies. So satisfied have the Smyrna people been with Miss Grosse during the thirty-three years that this boarding-school has existed, that many if not most of the ladies at present met in society, both European and Asiatics, as well as numbers of Turkish girls long ago secluded, have been educated there.

CHAPTER XXVI.

BRIGANDAGE IN ASIA MINOR.

FROM the day when "a certain man went down from Jerusalem to Jericho, and fell among thieves," the world has never been without its covetous and cruel miscreants in every station of life, ready at all times to seize and appropriate other people's property whenever the opportunity offered itself. It need hardly be said that this propensity is not the monopoly of any nation in particular; and if the reader's attention is briefly asked in this chapter, while the page of crime is opened in Asia Minor, it is not with the object of exhibiting a blacker and longer calendar than elsewhere unfortunately exists, but rather with the view of showing what a dense and troublesome mass of accumulated evil modern Turkish rulers have had to deal with, and to bespeak a degree of charity in the judgment of events which have from time to time occurred under a system of government so entirely different from our own.

We need not lift the veil of antiquity in order to get at the origin of brigandage in Turkey, for the nuisance seems to have existed with more or less intensity for ages, according to the spirit and determination of those in power at the time; to the larger or smaller degree of prosperity of the peasantry at different periods; to a condition of peace or war; and to the honesty or cupidity of the pachas and inferior officers. There were, however, two notable events in modern Turkish history which, without being strictly responsible for the great increase of crime which occurred, certainly preceded serious and long-continued periods of brigandage. These events were the final suppression of the

force of Janissaries by Sultan Mahmoud II. in 1826, and the close of the Crimean war in 1856. When this monarch was placed upon the Ottoman throne by Mustapha Bairaktar, the chief of the Janissaries, in 1808, he succeeded to a kingdom suffering in every direction from discontent and all but active revolt; but being a sultan of great energy, fierceness, and determination, he quickly brought about a change for the better, by curbing the pretensions and abuses of his pachas, and crushing out disloyalty, with the single exception of Mahomet Ali of Egypt, who became semi-independent. He likewise cleared the country of brigands, petty thieves, and foot-pads, introduced numerous European customs and improvements; and, generally, commenced that difficult revolution of Moslem ideas it took so long to change, the good effects of which are seen everywhere in Turkey at the present date. It is not only possible, but certain, that, like many reformers before and since, his notions and actions proceeded from convictions in advance of his time; and that, in aiming at the immediate suppression of ancient familiar usages and even abuses in every department of the government and its services, he unwittingly destroyed much that was martial among his countrymen, in an age when soldierly qualities were eminently necessary, without putting any other virtues in their place. During his reign the education of youth began to engage the serious attention of the government; some of the refinements of modern civilisation, and the graces which impart the principal charm to society, made a few converts among his younger subjects of the capital; and the hitherto luxurious monopoly of the water-pipe and perfumed bath in not a few instances, succumbed before the healthy mesmerism of science and art. A fair start towards a platform of higher pursuits had thus been commenced and accepted among a small section of the metropolitan community; nevertheless, all such changes were invariably frowned down by the bulk of the older Turks, who then, as now, resolutely opposed every innovation.

While the Sultan Mahmoud was thus endeavouring to

elevate the taste of his people, the lurid eye of acquisitiveness was upon him ; the Muscovite was hungering after his territory, and as the Turks had for some years been paying more attention to the arts of peace than war, after an unsuccessful struggle, were forced in 1812 to cede Bessarabia to Russia. The temper of the fiery and progressive Sultan was not improved by this loss, so, casting about for a victim upon whom to visit his wrath, as despots are apt to do, he pounced upon Righeb Pacha, Governor of Aleppo in Syria, who also had proved unsuccessful in a military expedition, and superseded him by a known enemy of the Janissaries, Tchapan Oglu (son of the shepherd). Being aware of the new governor's character, and the small esteem in which he regarded them, the chiefs of this domestic force privately conveyed over all their valuables to the Jews, Consuls, and Europeans, then resident at Aleppo, to be kept for them until brighter days dawned. The Governor for a considerable time not only evinced no hostility towards the Janissaries, but leaving the affairs of the town and province in the hands of his inferior officers, devoted himself to hunting and other private pursuits, in which the officers of the force were his frequent companions. In this way their fears were lulled, and they began to think that they had done the great man injustice by their suspicions. Shortly afterwards the Governor made a grand garden party, on the 25th November, 1813, to which all the officers were invited, and during the festivities every one of them was assassinated. Next day the scoundrel Oglu claimed, but did not receive, all the property of his murdered guests. Some he gained possession of, but most of the persons who held the valuables, knowing that, as foreigners, they could not be compelled to disgorge, refused compliance to his demand. Years after the tragedy, when the families of the Janissaries returned to Aleppo, fully expecting the restitution of their property, they were met with evasions and denials, and to the eternal shame of the Jews, Consuls, and Europeans, with whom it was left in trust, it is said that with the exception

of Salomon Alteras, an honest Jewish merchant, who delivered up everything that had been confided to his care, the rest basely repudiated their liability.

Meanwhile Turkish affairs generally had been going from bad to worse, and before 1817 the three great provinces of Servia, Moldavia, and Wallachia were practically lost; the Ionian Islands rebelled; followed in 1820 by the commencement of the Greek revolt.

Under these rapidly accumulating disasters it need hardly be wondered at, if the Sultan Mahmoud was in a less likely state of mind than ever to submit to the insolences of his Constantinople Janissaries, men ever ready to take advantage of outward troubles to commit deeds of violence. This turbulent body had already in the course of their history frequently conspired against the government of the period, and had assassinated several sultans, viziers, agas, and other high officers. On the present occasion, having opposed some of Mahmoud's measures of reform for the capital, the Sultan, determined to get rid by one stroke of the mutineers, aroused the zeal of his loyal troops by a display of Mahomet's flag. The Janissaries were suddenly attacked, driven into barracks, when the buildings and eight thousand men were destroyed by fire, fifteen thousand were immediately executed in the Hippodrome (Fig. 60) mowed down with whirlwinds of grape-shot, twenty thousand were banished from the capital, and on the 17th June, 1826, a firman was issued declaring the whole Janissary force for ever suppressed. Thus by one of the most ruthless massacres on record, the gendarmerie of Turkey, originally enrolled in the year 1330, was swept away. Latterly it had proved a constant menace to Constantinople and its rulers; on the other hand, it appears to have been the opinion of European officials living on the spot, or within the dominions of the Sultan at the time, that the slaughter of the Janissaries destroyed the last shred of the charter of Ottoman liberties by removing the only check the country had against the arbitrary will of the Sovereign.

After these disastrous and painful events, brigandage once more, and very rapidly, reared its hydra head, on account of the large accessions of disbanded soldiery it received from a force whose numbers, before the suppressive edict, amounted to about 400,000 men. Evidently then, notwithstanding his favourable beginning, Mahmoud II. scarcely deserves the title of having been a benefactor of his country; and even had his successor in 1839 been of the same resolute and unscrupulous disposition as his father, he could hardly in the course of his reign have got rid of such a legacy of evil.

Brigandage was in full operation everywhere when Abdul-Mijid, the eldest son of Mahmoud, became Sultan; nevertheless, had he been at all as energetic in trying to crush out the curse of the country as he was enthusiastic in building marble palaces on the Bosphorus, much improvement might have been effected. He had fourteen years at his disposal, yet little or nothing appears to have been done; consequently, when the Crimean struggle began in 1853, it found the Turkish Empire overrun by thievish miscreants. In the first instance this war must have relieved the country for a time of numbers of the brigand fraternity; but at its termination, in 1855, thousands of disbanded soldiery again took up the trade, and from that date to the present time no part of Turkey has for any lengthened period been without numerous bands of both native and Greek marauders.

As regards the Smyrna district of Asia Minor, brigandage during the past fifty years has consisted mainly of two well-marked and distinct elements. The line of coast extending from Cape Mycale to the site of ancient Phocælo on the Gulf of Smyrna, suffered chiefly from Greek raiders, supplied in almost any number by the Ægean islands, and sea-board towns and villages of Thessaly and Greece; while the territory extending between Ephesus and Aïdin was haunted by mountaineers, principally Turks, from the Messogis range, and known as Zicbees, dressed and armed

in the style illustrated by Fig. 75. The difference between these two specimens of Oriental rascaldom consisted in the

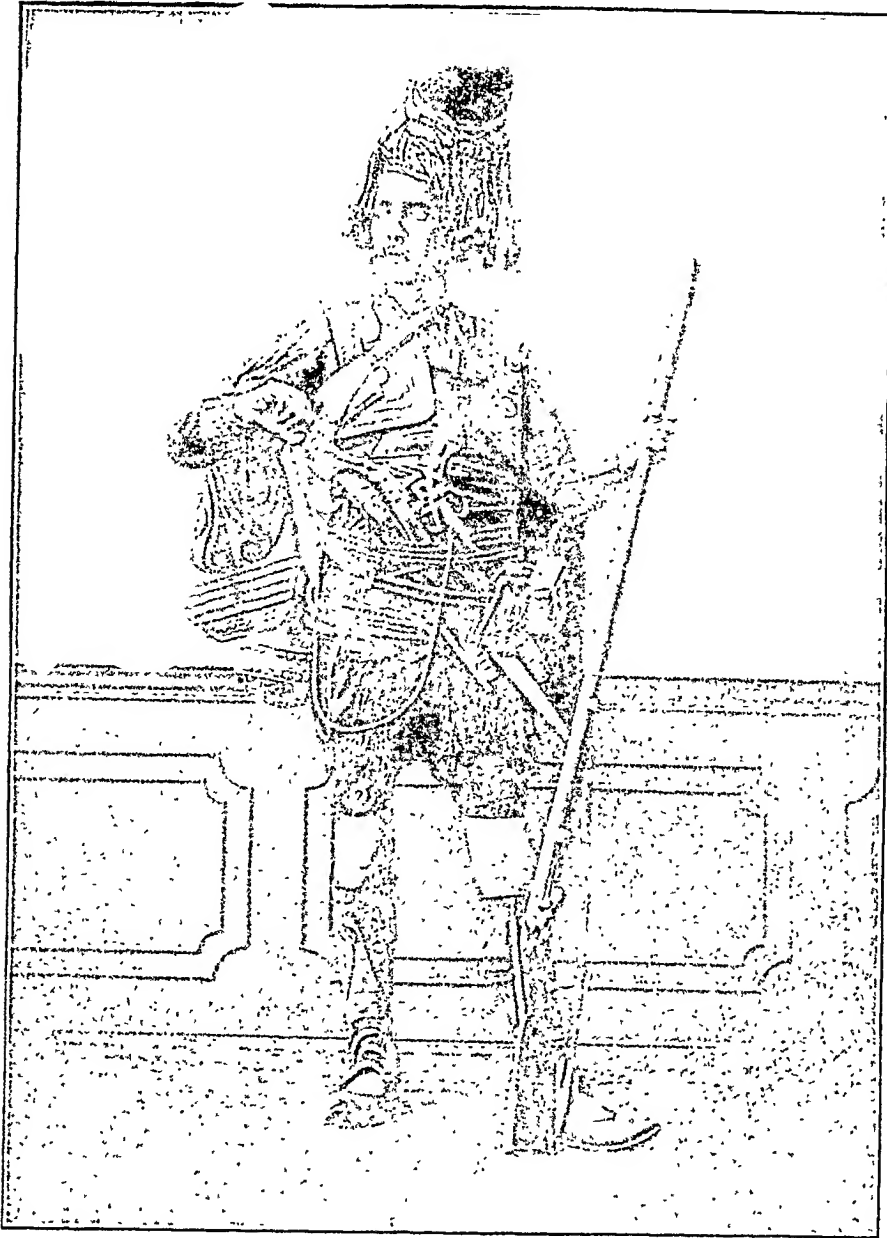


FIG. 75.—A ZIBEC, TURKISH MOUNTAINEER.

first being eminently crafty, quick in their movements—here one day, miles off next—and depending to a large

extent for their seizures on the information conveyed by village or town confederates; whereas the second looked rather to open daring, cool courage, and the relentless tracking and pursuit of predetermined victims, for success.



FIG. 76.—TYPES OF TURKISH IRREGULAR FORCES.

The Greek brigands were usually content to seize single persons of some little importance in the official or commercial community, for whose release considerable ransoms might be expected; while the Turkish robbers, like the

old bushrangers of Australia, made attacks on villages and small towns in well-organised bands, and levied contributions at the scenes of their forays, or in default of satisfactory plunder marched off the unfortunate people to the hills. As a specimen of the Greek style of brigandage, the following occurrence, which happened a little over three years ago, may be quoted. Among the most successful of the peasant girls of that season, in rearing silkworms under Mr. John Griffitt's direction, was a fine young woman of nineteen, belonging to the little town of Nymphio, who fell a victim to brigands one afternoon. She, along with her father and some relatives, were gathering their vintage, when five of these miscreants suddenly appeared and bore off both father and daughter to the adjoining mountains. A ransom was named, and after much disputing was reduced to the equivalent of £30 of an immediate payment, and £270 on the completion of the grape harvest, or £300 in all. The father was then released in order that he might fetch the money, which he did. Unlike a desperate encounter, which occurred near the same place a short time before, there was no tragedy. The girl escaped death, and even the discomfort often described by victims of being hurried about through wild crags and marshes night after night, as the band for security changed their camp, and with no other nourishment than an occasional crust of mouldy bread. In the present instance the brigands coolly and fearlessly remained with their fair captive at the bottom of the mountains until their bargain was so far implemented; but it is quite well understood among the little foreign community of Smyrna that had the gold not been speedily forthcoming, this interesting young Greek maiden would have been ruthlessly murdered, and it seems to be equally well known that in most of such outrages official persons are more or less implicated.

Another successful attempt at plunder is related in Chapter XXV., wherein an Armenian gentleman of Smyrna was picked up near the house of the lady who afterwards

became his wife, by the brigand Catterdjee Janni, and was only released after a time on payment being made by his friends of £3000.

Two years ago Ali Agha, a well-known Turkish gentleman of the town of Adabazar, was captured by brigands while spending a few days at his farm, a little distance off, and was compelled to pay £325 of a ransom. Many outrages of similar character to the foregoing, accompanied by the coarsest crime and murder, having been traced to a truculent robber known among the peasantry as Captain Andrea, he was at length captured, photographed along with one of his young hopefuls (Fig. 77), and is now, along with many other crime-stained wretches, chained in a vault in Smyrna, awaiting trial.*

Sometimes the brigands work in pairs, one on foot and the other mounted, with the object of attacking waggoners or small caravans. A case of this kind occurred near the village of Saraikey in the centre of Asia Minor, towards the end of 1884, and was reported in the Constantinople journals. An Armenian business man, his assistant, and driver were plodding along the road from Cesarea in their waggon, when they were ordered by a foot and mounted brigand to surrender. The Armenian immediately replied by shooting the former with a charge of blank cartridge, which sent the scoundrel to earth. Seeing his companion fall, the mounted robber fired upon the traveller, and shattered his leg near the ankle, when his two servants, although also armed, submitted to the mounted bully. In the meantime the Armenian, desperately wounded as he was, crawled to the nearest rock, and continued to defend himself. Getting behind one of the servants as a shield, the brigand advanced upon the brave merchant, who still defied him, and succeeded in again putting a bullet into his body, when his resistance ceased through agony and weakness. In this con-

* Since the above was written, this miscreant appears to have escaped from custody, as a Reuter's telegram, dated Smyrna, May 11, 1887, says:—"The notorious brigand chief named Andrea has been captured at Ephesen."

dition the poor man was robbed of fifty-five Turkish pounds; his miserable curs of servants were deprived of the few



FIG. 77.—CAPTAIN ANDREA, A GREEK BRIGAND, AND HIS LIEUTENANT

piastres they had in their pockets, and some of their clothing; the horses of the waggon were taken; and as the first robber shot had been more frightened than hurt, and had now

regained his feet, the pair of scoundrels quickly made off. The wounded man was taken to the town of Yuzgat, about twenty miles distant, and attended to by a surgeon, who, however, pronounced the case hopeless. When safe, the cowardly servants stated that the mounted robber was named Buckukgee, a Turk, and son of Osman Bey, previously deceased, and that his brothers were beys of influence at that moment in Constantinople.

Occasionally the brigands make seizures of merchandise on a large scale, the after-disposal of which it is impossible to understand how they can accomplish safely to themselves, without the aid of unscrupulous associates somewhere among the mercantile community. On the 16th August, 1884, a quantity of opium valued at £2500 Turkish, or about £2200 sterling, was pounced upon near the town of Konialo while being conveyed to a Smyrna merchant; and daring thefts of various other kinds of produce on the way to market, by brigands, are reported too frequently to leave any doubt that the thieves of Asia Minor are not particular as to the nature of their plunder, so long as it can be readily and profitably got rid of.

Sometimes, however, these pests of Turkey go through little performances which, without plunder for their object, it is difficult to attribute to any reasonable cause except petty revenge. Schoolboys, after being soundly caned for juvenile delinquencies, are casually heard to say what they will do to the master when they grow up. Perhaps a spirit of this kind actuated the following:—Near the town of Bitlis in Armenia is the village of Tchorad, where a school for boys with several masters is established. One day in August, 1884, a notorious Turkish brigand of the name of Osman, accompanied by his band, swarmed into the village, entered the school-house, and proceeded to administer, with complete impartiality, corporal chastisement to both the scholars and their teachers. Nothing was said, but the blows fell thick and fast amidst a mingled excited chorus

of loss and treble. After the rod of correction had been applied sufficiently long in Osman's opinion, he turned out the whole of the occupants, locked the doors, and took away the keys in his pocket without the slightest attempt at theft or injury to the property. It is true that the Armenian patriarch immediately addressed a complaint to the Porte on the subject of the outrage, but the probability is that no redress will ever be obtained, although the brigands were all well known; and some of them doubtless appeared at the following village *fête*, dressed in the favourite Albanian costume, and looking as pure and innocent as the spotless material they on such occasions delight to wear (Fig. 78).

But brigands, whether facetious or freakish, are even in Turkey frequently brought to account, and their career of crime abruptly terminated. A Turkish robber of the name of Mehemet Pehlivan and his band of thirteen cut-throats, who had long been the terror of the Cartal, Beicos, Chilló, and Guebzé districts, were suddenly captured about three years ago by the gendarmerie. Pehlivan was not in reality the chief, although occupying a position of command; and one of his admirers said at the time that, although he had committed a murder or two, he was a most respectable brigand when compared with the others. The real leaders were two diabolical wretches, named respectively Ibish, and a Circassian, Isac. One of the complaints against these worthies was that they had tortured persons in several villages to make them deliver up their valuables, and then cut off their ears and noses. Even of this fiendish pair Isac appears to have been rather the worst, as he stole two Turkish girls from a village near Caramoussal, one of whom he sold in Constantinople, and when pursued is believed to have killed the other. Not one tenth of the crimes of these scoundrels is likely soon to be known, as they are said to be still at large, and the peasantry dare not give the slightest hint or information for fear of their vengeance. The fourteen robbers above mentioned were imprisoned,

and may some day be punished, on the other hand they may escape; meanwhile the two principal bandits with



FIG. 78.—A BRIGAND IN ALBANIAN HOLIDAY COSTUME.

fresh trains of merry men are probably at this moment engaged in the planning or execution of still greater crimes.

The year 1883 is not likely to be quickly forgotten by the merchants of Smyrna, as the daring of the brigands in that neighbourhood reached a climax by a wholesale capture of members of their class. The two sets of bandits already particularised—Turkish and Greek—determining to make one grand and eminently profitable stroke, combined their forces, and waited near the little town of Kuluk for the arrival of one of the coasting steamers from Smyrna. A more likely opportunity could hardly have been chosen, for thirty well-known and important merchants and others were on board among the general passengers. The gentlemen landed wholly unsuspecting, were quietly surrounded by the brigands, and marched off to the hills, where they were detained until a ransom of £1800 was paid. Had these unfortunate merchants been Turkish subjects, the belief at the time was that nothing would have been done; but being all foreigners with Consuls to appeal to, a battalion of soldiers was immediately despatched in pursuit of the brigands. The latter, being hard-pressed, ultimately surrendered on a promise of pardon and employment being given. Accordingly, on the day arranged the two chiefs, Yurook Osman and Djirid Oglu, with their bands, took train to Smyrna, called on the Governor, delivered themselves and their arms over to his mercy, and were forthwith pardoned and enrolled in the gendarmerie. There was good faith on both sides, and the covenants were strictly observed. A patriarchal simplicity characterised the entire transaction, which must have proved eminently satisfactory to the thirty gentlemen whose £1800 the white-washed scoundrels had received, but never returned. Whatever became of the money the subscribers failed to see it again, but the erewhile blackguards were transmuted into a force of vigilant policemen, and presently received orders to hunt down other knaves and ruffians no worse than themselves.

The novelty of the situation, with its regular pay, defined hours, and air of general respectability, appears to have

pleased the wolves in sheep's clothing for a time, and they behaved so well as quite to deceive the good Smyrna people, who now regarded them *sans peur et sans reproche*. When the turn of the new constables came round they were accordingly, in an evil hour, sent out to take share in the duty of guardians of the adjoining villages. This proved too much for their infant virtue. Once away from the critical eye of Smyrna, their old propensities returned with all the added force of nearly a year's abstinence from crime. In their brigand days they had unblushingly black-mailed the peasantry ; now, coming as protectors, they observed much the same formula behind the shelter of their uniform. The sums exacted were doubtless smaller, and no lives were sacrificed ; but, being always on the spot, the process came to be so unendurably frequent that complaints at length reached head-quarters, and the various detachments were ordered to Smyrna to answer for their misdeeds before the Governor and the Procurator-General, Teufik Bey.

Once more, on the 27th December, the ruffians appeared at the konak, but before gaining admission to the presence of the Governor, were requested to leave their rifles outside, which they did, but secretly retained their loaded revolvers. The Governor received them quietly and without abuse, stated the charges which had been made against them, and dismissed them for a time, telling them that their case would be gone into next day. Glad to be let off so easily, they were jauntily descending the palace stairs, when Osman Pasha, the commander of the troops in Smyrna, arrested the whole gang. Their revolvers were instantly produced, shots were fired at the brave old soldier without effect, a general fight and flight of bullets resulted, during which five of the bandits were killed on the spot, several wounded, and all the rest captured and thrust into prison. Thus ended a futile experiment—an attempt, praiseworthy in itself, to change the colour of the Ethiopian—which is scarcely likely to be repeated.

Before completing this chapter, a little reference to two of the gentlemen whose names have just been mentioned, may prove interesting.

General Osman Pasha is a gallant old soldier in command of the troops in and around Smyrna. He fought side by side with the British forces in the Crimea, being at that time a captain in command of a Turkish company. One day when the writer, along with his friend Mr. Pasquali, a good Turkish scholar, called with an introduction, they found the old warrior deep in the study of French without a master. The general proved most gracious and kind, and in the course of conversation mentioned the names of many Scotch and English officers of distinction, with whom he had come into frequent contact in the Crimea, and whom he much admired during that protracted struggle. Replying to his question of having ever been in the army, the writer said no; but that he had had some years of pretty active experience in the Volunteers. "Ah!" answered the veteran, "I thought I could not be mistaken; there is something military, I know not what it is, but it clings to a drilled man for life, and marks him out as having served his country; let us shake hands again!" He then exhibited his French manuscript exercise-book, filled with conjugations of various verbs and long lists of familiar phrases, written in a large schoolboy hand. After some further talk and consumption of the usual cigarettes and coffee, the general buttoned up his uniform, and accompanied us over the enormous pile of barracks, capable of comfortably housing ten thousand men, finishing with the kitchens and bakery, where we tasted the pelaff (boiled rice) and bread prepared for the soldiers. Like most men of mark and position, he evinced a reluctance to talk about his personal exploits, and we failed to get any further particulars regarding the fight with the brigands on the palace stairs already mentioned.

Teufik Bey, although quite a young man, has had considerable legal experience, and is in charge of the Criminal Prosecuting Department of the Turkish Govern-

ment at Smyrna. Like Hussein Hilmi Effendi, he was trained under the eye of Kemal Bey (both gentlemen already alluded to), and has profited to the utmost by his connection with the latter distinguished officer. The Procurator-General keeps at his office an album of brigands and other notorious villains, which is a remarkable volume to turn over; and to the student of physiognomy must be fraught with melancholy interest. On the occasion of the writer's first visit to him at the konak, the former was courteously asked to choose any one of the specimens of rascaldom displayed in the ponderous tome of criminal faces; accordingly, that of Captain Andrea (Fig. 77) was selected.

From the foregoing statements and examples of brigandage in Turkey it will be inferred, and with perfect truth, that the evil has been and still remains a most serious consideration for all classes of the peaceful population both native and foreign, as well as for the Government. Doubtless, wherever a firm, determined, and thoroughly honest and progressive viceroy appears, like His Excellency Hadji Nachid Pasha, late of Smyrna, now of Syria, and is supported by the able and upright officers alluded to above and elsewhere in these pages, the locust-like swarms of banditti disappear. For a time the scoundrels still at large cease to give annoyance within the province or district while the iron heel is down; but they are not reformed, they have simply removed to carry on their depredations elsewhere. Something else, then, is needed than an efficient and honest gendarmerie to cope effectually with the nuisance. The evil should be dealt with at its source with a view to cure, seeing that forcible extirpation has evidently proved a failure; and the writer's idea would lean towards improved laws, different methods of collecting taxation, and the immediate multiplication of roads and railways in various directions. Meddling with the statute-book of any country by a foreigner is at best a thankless task, so this item may be passed over with the simple remark that, so far as could be gathered from a four months' residence in

the country, the laws appeared to press on different classes very unequally. As regards the other defects alluded to, they are patent to every eye. The farming of the taxes is utterly wrong in principle, is damaging to the honesty of the collectors, is detrimental to the population, and must prove a serious loss to the Government; while the absence of roads and railways hinders the development of the country's magnificent resources, dwarfs and keeps at a minimum existing trade of every kind, deters foreign capitalists from investing, offers the premium of ready escape to all marauders, and places an effectual barrier in the way of their pursuit. The great vilayet of Aïdin, of which Smyrna is the chief town and port, has a population of about one and a half millions, distributed over more than two thousand five hundred villages and towns; yet, according to official records, only ninety-three miles of roads have been made during the past two years. The territory is certainly traversed by two considerable streams—the Mæander, with a course of one hundred and eighty-six miles, and the Hermus, one hundred and forty-four miles in length; but neither is navigable, except, perhaps, for very short distances in winter and spring, so that, practically, all inland communication and the conveyance of merchandise must be conducted by beasts of burden and by two lines of railway, whose united stretch is only two hundred and forty-eight and a half miles. It would be difficult indeed for any country, with even greatly improved means of travelling, but otherwise, under similar political conditions to those of Turkey at this present moment, to shake off all at once the formidable curse of brigandage, which has been the inheritance of ages. Nevertheless, the task, however difficult, must be confronted and the evil crushed, as well as the causes of it, if Turkey expects to continue in the position she has long occupied among the civilised nations of the world.

CHAPTER XXVII.*

THE SITES OF THE APOCALYPTIC CHURCHES.

To many people it has long been a matter of surprise that, while the Holy Land, which is further away from our shores, has been so frequently described by travellers, its scenery depicted by artists, and its flora, fauna, and geology again and again explained by the learned in such matters, Asia Minor should have hitherto been so comparatively neglected. Books without end have been written about every corner of Palestine, Egypt, and Arabia, alluded to in Scripture, while the modern range of literature connected with that singularly interesting part of Lesser Asia, in which the Apocalyptic Churches were planted, packs into such small compass that the volumes may readily be enumerated on one's fingers. The first English traveller to visit the sites was Thomas Smith,† an Oxford graduate, who in 1676 published a little work in Latin, which was afterwards rendered into English. The eighteenth century passed without yielding any important additions to our knowledge of the subject, except Chandler's most valuable 'Researches,' published about 1767, and Pocock's 'Travels'; and the only book of the present era devoted to the Seven Churches was

* This chapter was originally prepared as an essay, a portion of which was read by the author before "The Dunblane Temperance Union," Dunblane, Perthshire, on the 29th March. The whole afterwards appeared in the columns of the *Stirling Observer*, of the 8th April, 19th and 26th of August, 1886.

† Thomas Smith, B.A., was a Fellow of Magdalen College, Oxford; his book was entitled 'Septem-Asia Ecclesiarum Notita,' and it seems to have excited much interest among the scholars of Charles II. period.

that published in 1828 by the Rev. Mr. Arundell, chaplain to the Smyrna Consulate. This work was followed in 1839 by a journal by Fellows, and an important illustrated book by the French author Texier, both considered good textbooks for Asia Minor generally. Still later, in 1842, came the 'Asiatic Travels' of Leake and Hamilton, followed in 1862 by Bellow's 'Essays,' and the other day by Dr. Somerville's 'Home Letters' from Smyrna. These, so far as I have been able to ascertain, without reference to the British Museum Library, comprise within their covers all the modern printed information we possess. The subject, therefore, of the following few observations is one which—apart from its Scriptural interest—offers to some extent the charm of novelty, even in these days, when scarcely a corner of the earth has escaped the frequent visitation of the traveller. Without further preface, then, I shall ask the reader to suppose, that we have taken a railway train from Smyrna; that we have left the carriages at the station of Ayasouluk,* forty-eight miles along the line; that we are all mounted on donkeys, and are trotting merrily over the mile or so of ground which intervenes between the railway and the ruins of Ephesus.

EPHESUS (1).

The great city of Ephesus will ever be associated in the minds of all civilised people with the temporary residence of St. Paul, who dated his first Epistle to the Corinthians from thence, during the fifty-seventh year after the birth of Christ. It was the capital of Lesser Asia, as Smyrna is at this moment, and was one of the most magnificent cities of antiquity, abounding, as it did, with all the splendour that Oriental, corrected by Greek, taste could collect; all the

* This village had been previously named by the Greeks, Hagios Thologus, as being, according to legend, the final resting-place of St. John the Evangelist, or, as they designated him, "The Theologian." The Turks, however, cannot pronounce properly any word in which the letters "th" occur, so gradually the Greek name got corrupted into Ios Tologes, and finally became Ayasouluk, as at present.

wealth that an extended commerce could command; and all the prestige accumulated during the growth of culture of its own and previous ages. The city stood on both banks of the river Cayster, close to the Gulf of Samos, upon a beautiful plain, measuring five miles one way by three miles the other; and, with the exceptions of the hill Prion—which furnished the marble used in its construction—most of the remaining area is supposed to have been at one time covered with handsome buildings. The river flowed diagonally across and through among this pile of palaces, entering the great harbour of Panormus at its south-west corner, where, during, but more particularly before, the days of the apostle's visit, the ships of all nations came to trade. Yet grand and imposing as this great, white, glittering city, with its fine port full of vessels, must have seemed to the visitor approaching from the sea, there was one magnificent object more gorgeous and majestic than the rest, which attracted and chained the eye to the exclusion of every other, the second great temple of Diana—the last of seven successive buildings supposed to have occupied the same spot. This vast fane was not only the most conspicuous object in the city, but on account of its size, splendour, artistic completeness, and lavish display of wealth, was reckoned one of the seven wonders of the world. It covered more than four times the area of the grand temple of Minerva the Parthenon at Athens, or nearly twice the space occupied by St. Paul's in London; and strange to say, notwithstanding its bulk and enormous weight, was built in a marsh upon a foundation consisting of charcoal and the fleeces of sheep rammed tightly together—the object being to defeat the action of earthquakes, which in that region had from earliest times been more or less frequent. Several successive architects were employed on the structure, which was commenced 541 years before the Christian era. When finished, its outside dimensions were 425 feet by 220 feet; the building was surrounded by 120 solid marble columns, each 60 feet high, and each the gift of a king;

the inner shrine rested upon beautiful and massive pillars of green jasper, eight of which now support some of the interior arches of the mosque of St. Sophia at Constantinople; its sculptured and painted decorations, executed by the most distinguished artists of those days—among whom was Timarete, the first lady painter on record—were of the richest kind. All the Greek cities in Asia Minor contributed their offerings towards the cost during the 220 years the temple took to build; and, when at length it stood on the summit of an immense flight of marble steps, towering up majestically against a background of dark crags, the Ephesians might well have been excused if they were apt at times to display a noisy enthusiasm when they gazed upon their superb temple, and knew that there was nothing to match it in the world.

I have mentioned Mount Prion as the quarry out of which both the city of Ephesus and the temple of Diana were built. There is a legend regarding the discovery of the marble rock, which is amusing. A shepherd, in charge of a flock of sheep on the slopes of the hill, was one day watching a fierce encounter between two rams. One of the animals, in charging its antagonist, missed its stroke, and running against a moss-covered shoulder of the declivity with its horns, splintered off a film of stone, exposing to view a surface of the purest white marble. The shepherd picked up a fragment, ran with it into the older town over which Ephesus was afterwards built, and the inhabitants received the discovery with unbounded joy, immediately changing his name from Pixodorus to Evangelus (the good messenger). On the death of the fortunate shepherd, he was raised to the rank of a saint, and it was enacted by the Ephesians that their chief magistrate in all time coming should, under a heavy penalty for neglect, repair to the scene of the discovery once every month, and offer sacrifice to St. Evangelus; a rite which history states was faithfully observed up to the age of Augustus Cæsar.

To the Biblical student Mount Prion ought to be addi-

tionally interesting, as having been, according to tradition, the last resting-place of Timothy, the companion of St. Paul, and as the scene of the interment of the mother of our Lord. Here, also, the legendary finger indicates the sepulchre of St. John the Evangelist; but in this case it is more than likely that the tomb of the shepherd has been made to do double duty. That the side of the hill has doubtless often been used for the purpose of sepulture is evident from the numerous little cavities still to be seen, like the mouths of bakers' ovens, into which the dead might be thrust head or feet foremost. The marble quarries seem to have been worked chiefly in the interior of the hill, which is honey-combed into numerous vast, dripping caverns, with everywhere chips of white marble, bearing tool marks, lying about.

Inferior in splendour to the temple, perhaps, although to the intelligent visitor even more replete with interest, are the remains of the great theatre and stadium. The former was the largest of the kind ever erected by Greek architects, and was pronounced capable of accommodating 50,000 spectators. It was cut out of one side of Mount Prion, its exterior diameter was 660 feet, and scholars are of opinion that this was the scene of one of St. Paul's most perilous experiences. Lying, as the theatre did, to the south of the temple of Diana, the two buildings were at one time connected by means of a broad handsome street which passed quite through Ephesus; while midway between the temple and the city wall, under the northern base of Mount Prion, stood the circus or stadium. This was an immense enclosure, 685 feet in length by 200 feet in breadth, where all foot-races, chariotecring, wrestling, pugilistic encounters, beast fights, gladiatorial combats, life-and-death struggles between condemned criminals and condemned yet innocent Christians, took place. In this vast arena St. Paul had been an actor when he fought with beasts at Ephesus.

A city of such magnitude, resources, population, and splendour, could hardly fail, in those early days of the world's history, becoming the focus, not only of much that

was desirable and instructive, but also of a great deal that was vile. Accordingly, although it attracted the art and learning of the ancient world, it also became the haunt of rascals, thieves, and mountebanks of every kind. In the apostle's time Ephesus was the chief seat in Asia Minor of what was afterwards called the "black art," or magic; mysterious emblems, named "Ephesian letters," were cut or stamped upon the feet, zone, and on the coronet of the hideous block of wood worshipped as the goddess Diana or Artemis; numberless books of incantations and directions for necromancy had been published by its professors, and were in circulation; May was the month during which immense crowds gathered from all Asia to celebrate the pagan festivals and games; and as the inhabitants had long been familiar with and believed in the pretensions and tricks of the priests, sorcerers, wizards, and dealers in charms or idols, like Alexander the coppersmith, they must have at first been extremely disinclined to listen to St. Paul's teaching. Nevertheless, that a strong and flourishing church had been planted there, is evident from the language of Scripture;* but surrounded as it was with the abominations of paganism, it seems eventually to have deserved the reproach, "thou hast left thy first love." It was threatened; it may never have repented; at all events it was swept away with the ruin which overtook the great city. The magnificent temple was plundered of its fabulous wealth by the Roman Emperor Nero; it was afterwards burnt by the Goths; and finally all that remained of both city and temple was entirely destroyed A.D. 381, during the reign of Theodosius I. At present not a trace of the once noble structure, except broken fragments and the foundations, remains, and even these had been lost for centuries, until unearthed by Mr. Woods, an architect of Smyrna, between 1873 and 1877, partly under the auspices of the British Government.

Even had Ephesus and its majestic temple escaped the spoliating hand and torch of enemies, the probability is

* Revelation ii. 1-7.

that natural causes would have eventually accomplished the ruin of the city, through the disorganisation of its trade. During St. Paul's visit the grandeur of the great capital was beginning to decay in consequence of the gradual filling up of the harbour with the mud and sand brought down annually at the flooding of the Cayster, after the melting of the winter's snows. It is an ominous fact, too, that exactly the same process is going on at Smyrna, where the river Hermus is rapidly throwing an immense sandbank across the entrance into the beautiful bay. Any other European Power, except Turkey, would have long ago taken the most drastic engineering measures to arrest such a ruinous result. From calculations recently made on account of the foreign community there, it appears that, at the present rate of progress, the Bay of Smyrna in less than fifty years, should no effective steps meanwhile be taken, will have become a lake, after which it will degenerate into an unhealthy swamp like Ephesus, when it will necessarily be abandoned simultaneously by trade and population.

SMYRNA (2).

From the earliest historical times, Smyrna appears to have been a place of importance ; but its actual beginning, as well as its founder, are shrouded in mystery. The honour has been ascribed by some writers to Tantalus, a king of Lydia, and son of Jupiter and Pluto ; tradition favours an Amazonian origin, and indicates that a shrewd lady of Ephesus, anticipating the extinction of her native city through the cause just alluded to, led a party forth to found a colony to which she gave her own name—Smyrne ; other authorities give the credit to the *Æolians* ; while a few consider that the great city arose out of the efforts of a party of Ionian colonists. Such inquiries are of little importance to us ; it is probably sufficient to know that its name has never altered ; that it was rebuilt 400 years after having been demolished by the Lydians, that it rapidly,

thereafter, became the greatest city of the Ionian Confederacy, notwithstanding the frequent punishment it received in those early times from earthquakes and war; and that it is at the present moment more flourishing than at any former period, being one of the chief seats of commerce in the East. About the year 120 of the present era, Smyrna suffered terribly from a volcanic convulsion, but it was subsequently repaired by Marcus Aurelius. Since then, although often visited with earthquake shocks or tremors, which have always inflicted more or less damage, the city has never again been materially injured. Unfortunately, the same thing cannot be said for its immediate neighbourhood. In October, 1883, a series of earthquakes occurred in the Anatolian Peninsula, which wrecked all the villages between Chemeh and Vourla—the latter a little town only a few miles from Smyrna—by which more than one thousand persons lost their lives. Still later there was a similar catastrophe, which affected a circuit of two hundred miles, and twenty thousand terrified people were driven from their tottering houses during the winter snows. Amidst all this calamity an event of the most ludicrous nature happened, showing at once the credulous disposition of the people and the condition of fear under which they were labouring. On Monday, 22nd October, 1883, when large numbers of the Smyrna workmen were engaged in the streets and yards adjoining the harbour, packing the raisin and fig harvest for exportation, one of those eccentric beings, called a dancing dervish (Fig. 74), came twirling and spinning through the town, loudly proclaiming the approach of more earthquakes, and that the end of the world was at hand. Having spoken his mind, accompanied with many a forcible Turkish and Greek expletive, he continued his pirouetting, and spun himself away by the nearest route out into the country. The result was electrical. Work was immediately abandoned, as, according to the terrified exclamations of dread which arose on every side, “What was the use of further slaving, if the end of all things was near?” One

employer of some six hundred fruit-packers had accordingly the mortification of beholding the instantaneous stampede of his entire staff at the words, "*Sauve qui peut*" (save himself who can), yelled by one of their number. Speedily almost the whole working population of that portion of the city, emulating the performance of the "Piel Piper of Hamelin" and his little victims, was seen rushing after the dervish away to the mountains.

To the student of Christian history, Smyrna offers something peculiarly interesting in the circumstance that its first bishop, the good and noble Polycarp, the friend and contemporary of St. John, is with good reason believed to have been the "Angel" addressed in Revelation ii. 8 to 11. This most worthy old Christian was martyred by fire A.D. 168, during the reign of Marcus Aurelius, in the stadium, a little way below the ruins of the Byzantine Castle, which crown Mount Pagus; and a pillar upon the slope of the hill overlooking Smyrna harbour is pointed out as the spot where the ashes of Polycarp were buried. It was of this venerable ornament of the early church that the anecdote is told,* when the Roman Proconsul, anxious to save the old saint from the terrible death that awaited him, urged a denial of Christ in the words—"Swear by the Gods, and I will release thee;" Polycarp replied, "Eighty-and-six years have I served Christ, and he hath never wronged me; how can I blaspheme my King who has saved me?"

But Polycarp, although he lost his life for his staunch adherence to Christianity, was not the only sufferer who could point the finger of reproach at Smyrna, and say—"I also suffered there." In recent times, and to a very small extent, one of Scotland's distinguished preachers on one occasion, like the traveller in the neighbourhood of Jericho, fell among thieves. The Rev. Dr. Norman Macleod gave the following experience in *Good Words* in 1866:—"The sail up the Gulf of Smyrna is one of the most beautiful in

* *Vide* Archbishop Wake's translation in his 'Epistles of the Apostolic Fathers'; also Milner's 'Church History.'

the world. . . . A boat intercepted us on landing, in which were two robbers calling themselves Custom-house officers, who demanded *backsheesh*, and, I am sorry to say, got it, in order to refrain from examining our luggage, in which there was no contraband. We had to repeat the dose on landing: but when the same trick was attempted on departure, we had a long dispute, in which we carried the day, by permitting the robbers to open every package, refusing, to their bitter anger, to give them another farthing."

When in Smyrna two years ago, I made inquiry about this little episode, and was told that the Turks are most particular in opening every package landed from India, from which country Dr. Macleod had just arrived, and that the genial clergyman's little mistake lay in giving *backsheesh* beforehand. By so doing, he simply whetted an appetite for piastres in the other officials standing around. Fortunately, the reverend gentleman's sufferings could hardly be called a martyrdom; they were of brief duration, and only touched his pocket.

Smyrna at present contains a population of about 146,409 persons—consisting of 52,196 Mussulmans, 71,083 Greeks, 4498 Armenians, and 18,632 Jews. This estimate does not include a considerable sprinkling of British, French, Germans, and a few Americans, who, although numerically unimportant, are extensively engaged in business. The aspect of the chief streets is of the liveliest description, although, these being narrow, a limited number of people scrambling along, and mixed with horses, donkeys, camels, bullocks, and carriages, make a greater show than on the broader thoroughfares of this country. So long as the visitor confines his walks to the quays, and to one or two of the recently-paved avenues, his expressions of approval will be profuse; but let him wander into any of the adjoining lanes or less important passages, and his laudation will immediately change to anathema. He may, in order to avoid sprained ankles, get into a carriage, of which there are many for hire at reasonable rates; but it will be sur-

prising if at the end of ten minutes he does not express a vehement wish to get out, in order to avoid dislocation to every bone in his body through the reckless bumping over yawning chasms he perpetually receives, and the violent oscillation he is forced to endure. Before he is quite reduced to pulp, or resolved into his original state of protoplasm, in a stentorian voice he commands the driver to stop, and abandoning the vehicle probably mounts a horse, or even a lowly ass, both of which can also readily be obtained for hire. Now he smiles with satisfaction, and imagines that he has overcome the difficulty. Vain hope! Rounding the next street corner, he is confronted by a long string of stately camels loaded with green fodder; with great bags of charcoal, the spikes of which stick out in every direction; with bales of cotton, carpets, or bundles of brushwood for burning. The way is narrow, the loads of the camels reach almost from side to side, and there appears to be no room to pass. Should the mounted stranger keep on advancing he feels that he will probably be brushed off his saddle into the filthy central gutter; if he retains his seat, the thought occurs, how is he to protect his fine linen and white attire against contact with the spiky charcoal? The problem is too difficult for solution; accordingly, he chooses the only apparent alternative—he ignominiously turns tail and levants the way he came. It will be acknowledged, then, that getting through Smyrna either on foot, on wheels, or on the back of an animal, is attended with disadvantages; accordingly, as there is not a great deal to see in the town, the visitor will be well advised to put a few necessary articles in his bag, get on board a steamer in the early morning, and steer for Pergamos.

PERGAMOS (3).

Pergamos, although only 64 miles north-north-west of Smyrna, is somewhat tedious to reach. It is situated upon the mainland of Asia Minor, behind the large island of

Lesbos, nearly due west from the town of Mitylene ; it is fully 20 miles from the sea, but not far from the considerable river Caycus, which flows into the Gulf of Sanderli. There being as yet no railway communication in that direction, the traveller desirous of reaching Pergamos in the easiest manner requires to take a steamer as far as the junction of the twin streams Selinus and Cetius with the Caycus, then ride or walk the remaining few miles, or get into a smaller boat, and thus reach the town, which contains about 15,000 inhabitants.

The origin of Pergamos, like that of many other Greek cities, is uncertain, being mixed up so curiously with the mythological element; the first historical mention made of it upon which we can rely is that of Zenophon in his 'Anabasis.' From this author we learn that Lysimachus, one of Alexander's generals, observing features of natural strength about it, made choice of the spot for a fortified citadel in which to secure his wealth. His treasurer, Philatærus, afterwards revolted, and founded the independent kingdom of Pergamos in the year 280 B.C., which endured for 150 years, when it was bequeathed by the third Attalus, in one of the shortest wills on record ("*Populus Romanus bonorum meorum hoeres esto*"), to the Romans, who duly accepted the legacy. From that date its decay began, and when under the Byzantine kings, the seat of rule over the neighbouring provinces was removed to Ephesus, its decline was rapid.

During the reign of Eumenes II., from B.C. 197 to 159, Pergamos was in the height of its glory and greatness, which must have been considerable to have led to the accumulation in such early times of a library of 200,000 volumes—second only in extent to that of Alexandria, which it afterwards in part for a time replaced. Out of the requirements of this important literary collection arose the valuable discovery of prepared sheep-skin for writing upon, the ancient name for which, *charta pergamenta*, was afterwards modified into "parchment." The story is worth repeating. It appears that the army of copying clerks

employed to transcribe manuscripts for other libraries, had on one occasion exhausted all the writing material in the neighbourhood ; consequently, a somewhat extensive order for papyrus had to be transmitted to Egypt. Then, as now, there were some narrow-minded people in the land of the Pharaohs, as there are among ourselves, who grudged every evidence of prosperity outside of their own circles ; and being loud talkers, their fallacies imposed upon the public mind. These foolish persons were encouraged by an equally foolish, jealous, and vindictive king. Ptolemy had, from the first, heard of the commencement of the library at Pergamos with the utmost displeasure, thinking it might soon rival his own at Alexandria, so was in no mood to aid its extension or usefulness in any way. Accordingly, he calculated that, were he to stop the supply of papyrus, the obnoxious scribes and book-makers of Mysia would speedily become dispersed through having nothing to do. A royal edict was therefore issued, and the exportation of the writing material of the period ceased. When we look back through the changeful vista of more than 2000 years at this silly and spiteful transaction, and recollect how in modern times a less important matter has sometimes led to sanguinary struggles between nations, we cannot but admire the conduct of King Eumenes on this occasion. In the dilemma, instead of going to war with Ptolemy, the king of Pergamos stimulated the inventive faculties of his own subjects to find a substitute for papyrus. Ere long the industrious tanners of the Selinus, who for ages had been scraping and preparing sheep-skins for leather, bethought them of scraping the material a little thinner, and currying it with a little more care, when a substance was produced which more than satisfied every requirement, and the rancorous Egyptian monarch was completely defeated. Thus was first brought into use the best and most durable material for carrying the records of humanity into unborn ages—parchment, which at the end of more than twenty centuries is still practically without a rival.

As was to be expected, this discovery greatly and quickly increased the importance of Pergamos, and attracted to it a large share of the learning and wealth of Lesser Asia and other countries. It soon became an Eastern Athens, and, following the heathen custom of the period of selecting a particular object for worship, adopted Æsculapius, the father of the medical profession, the remains of whose shrine are still pointed out beyond the present city walls.

Probably on account of its somewhat remote situation from any line of commerce, the truly magnificent ruins of Pergamos have suffered less from foreign spoliation than those of the other Apocalyptic churches. They embrace specimens of both Greek and Roman architecture; the former belonging, according to experts, chiefly to the periods of the reigns of Attalus and Eumenes (241 to 132 B.C.); and the latter to the two or three centuries succeeding the opening of the Christian era. There is one conspicuous ruin, usually named the Basilica, which has puzzled every authority who has attempted to explain its probable use. It has been called the church of St. John, but examination proves it to have been erected long prior to Christian times; it has been pronounced a town-hall, a treasury, a special government building for the safe keeping of national records; and some critics have even imagined they detected in its massive walls, circular towers and other features, the veritable library-rooms of Eumenes II.; but no conjecture has yet proved satisfactory. All that can be said is that the relics are those of a majestic ruin of brick, granite, and marble, interspersed with the prostrate remains of beautifully-carved Corinthian columns; the whole towering above the pretty limpid Selinus, in the midst of as fertile and lovely a valley as one could wish to see.

Before finally quitting this disputed matter, it may not be out of place to remark in reference to the Pergamos library that, although Ptolemy of Egypt failed to arrest its progress by his ridiculous edict, the strange irony of fate afterwards prompted the bewitched Antony to

make a present of the entire collection to Cleopatra, the daughter of the Egyptian king, who removed it to Alexandria.

The other remains of Pergamos are also of a majestic order, and consist of the Acropolis and its adjoining ruins, an amphitheatre, aqueduct, bridges, and a spacious tunnel 645 feet in length. The latter is a remarkable object, showing that even in those early times, when land was cheap, economy of space, particularly within a walled city, had to be studied. As the course of the river lay through the densest section of the population, it was arched over in order to gain additional accommodation. The mason work appears to have been of the best description, as the remains of a huge edifice still occupy a site over a portion of its length ; and part of the remainder is covered with Turkish houses, of which the people facetiously say that "they are neither on the earth nor in heaven" (*Ne Yerde ne'ne Goenk:de*). In ancient times the bridges must have been numerous, as both the rivers, Selinus and Cetius, flowed through the city. Five of these bridges remain, and they are interesting to the student of architecture, as in each case the substructure has been affirmed by judges to be purely Grecian, while the superstructure is Roman.

The amphitheatre seems to have been constructed expressly for the display of great aquatic spectacles, as a stream of water passes through the centre of the arena, which is perfectly level and paved with stone. Critics say, indeed, that the arrangements are such that the whole vast area could have been flooded in a very short time when the nautical sham fights were about to begin. The other ruins, although all magnificent, do not call for special mention ; but sufficient has probably been said to show that Pergamos must have been a city of great importance when the Angel of the Church was addressed by St. John.

From Pergamos to Thyatira is a distance of about sixty-two miles, to be accomplished at present only on horseback and with an armed Turkish escort.

THYATIRA (4).

No tour is perhaps so utterly disappointing in the whole range of Eastern travel as a visit to the site of ancient Thyatira. After looking over verses 18 to 29 of the second chapter of Revelation, and noting how greatly the commendation of the Christians there in St. John's days exceeds the rebuke administered; how the denunciations and threats were directed, not against the Church, but were hurled at heathenism under the name of "Jezabel"; when, towards the end of the chapter, we read two such wonderful promises as "power over the nations" and the gift of "the morning star"; when we see such praise, consolation, and encouragement in the sacred page, and find the actual spot an almost total blank, our mortification is excusably great indeed. For ages the site of Thyatira was unknown or disputed, and various ruins scattered over Asia Minor were in turn credited with being the actual spot. In later times, when a keener degree of interest began to be excited throughout Europe to have the whole of the sites of the Seven Churches properly verified, it was at length found, to the satisfaction of scholars, that ancient Thyatira was identical with the modern and existing Turkish town of Ak-Hissar (White Castle), situated in a most fertile valley in the north of Lydia, on the river Lydus, about 26 miles from Sardis, and nearly 56 miles north-west from Smyrna.

The origin and ancient history of Thyatira are obscure and limited. Strabo, the prince of ancient geographers, calls it a Macedonian colony. Its name was originally Pelopia, but Seleucus, one of Alexander's generals—who afterwards, like the rest of that great conqueror's captains, assumed the title of king—having repaired the city walls, named it Thygateira, in honour of the domestic intelligence which had just reached him, of the birth of a daughter. Other critics, disputing Strabo's assertion, say that the city had been known by a variety of names from the remotest antiquity, and that it was a place of some commercial

importance long before the Macedonian conquests. Putting aside such varieties of testimony as having no connection with the subject at present engaging our attention, and turning to later history and Scripture, we find that in St. Paul's days the place had a name and standing for the art of purple dyeing. It was probably through this circumstance, in connection with Lydia, the seller of purple whom the apostle met at Philippi, where she had doubtless gone to dispose of her beautiful dyed wool, that the gospel was first introduced into Thyatira, the lady herself being the first missionary. Under the circumstances, it can do no harm to assume that Thyatira, being commercial rather than ecclesiastical, a busy hive of manual labour rather than an academic grove, would be less likely to possess a brilliant history or magnificent buildings than Ephesus or Pergamos. But if it cannot lay claim to the historical splendours of these famed cities, its neighbourhood was at a later date the theatre of some stirring scenes. It was on the slopes of its nearest hills that Antiochus the Great mustered his legions to contend against the hosts of the two Scipios, in which battle he was defeated. On that occasion were assembled as leaders and volunteers some of the greatest generals of the period—Antiochus, Hannibal, Scipio, Africanus, and his brother Asiaticus; the conquerors and defeated of Carthage stood there face to face. There the blood of the Roman, the Greek, the Asiatic, and the Moor mingled in the terrible onslaught, which practically converted Lydia into a Roman province.

The Thyatira of the Apocalypse, although thus associated with at least one great historical event, has scarcely any stone records to exhibit; it can produce no sculptured credentials to show the traveller what it may at one time architecturally have been like. Its stately edifices, if there were any, are as completely gone as if they had never existed. Here and there on the outskirts of the present thriving Turkish town the visitor may see, half-buried in the soil or covered with a growth of wild oleander, a fragment of a capital, a broken

plinth, a cracked frieze, or other remains of the ancient carvers' skill; but of temple, church, theatre, circus, castle, or aqueduct, not a trace is left.

On the other hand, it need not for a moment be imagined that Thyatira and its surroundings are a "howling wilderness." Far from it. Ak-Hissar is a prosperous seat of the woollen trade, with its dye-works as of old, and abounds with good shops of every kind. It possesses nine mosques, one Greek and one Armenian church, and is remarkably clean and tidy, on account of having an abundant flow of pure water trickling through every street. Strange to say, it is in these modern buildings and pretty gurgling avenues that the antiquarian must search for the chief remaining vestiges of old Thyatira, where he will be startled occasionally to see beautiful carvings and inscribed panels built, often upside down, into the walls and garden fences. Evidently, then, although war and perhaps earthquakes have had their share in the disappearance of the ancient city, something has also been due to the utilitarian hands of her own sons. These sturdy dyers had little eye for the beautiful in form, however good judges they may have been of colour. When their city was demolished by natural convulsions, or by the struggles of contending armies, they simply proceeded to construct a new town out of the relics of the old, and to continue the trade of their ancestors as if no check had occurred.

The reader has thus, in imagination, passed over a distance of 224 miles, viz. :—

	Miles.
From Smyrna to Ephesus, by rail, road, and back	98
„ Smyrna to Pergamos, by steamer and road	64
„ Pergamos to Thyatira, by road	62
Total	224

From Thyatira to Sardis is a moderate ride of 26 miles, and were the reader to continue his progress in the same direction—namely, from Thyatira to Sardis, Philadelphia, and Laodicea, and thence back to Smyrna—the distance covered

would be about 282 miles, including a very uninteresting horseback journey of 65 miles. Such would have been the route some years ago, ere the two convenient railways, running north-east and south-east from Smyrna, had been formed, necessitating in those days carrying tents for shelter at night, and exposing the traveller to the risks of excessive fatigue, possible fever or rheumatism, and the certain attention of brigands. No one would now voluntarily undergo such hardships and risk when, by adopting a longer but better railway detour, they can be avoided. Accordingly, after an easy ride to Sardis, we shall again take advantage of the railways as far as possible, and our itinerary will be :—

	Miles.
From Thyatira to Sardis, by camel track	26
„ Sardis to Philadelphia, by railway	28
„ Philadelphia to Smyrna, by railway	105
„ Smyrna to Seraiskey, by another railway	143
„ Seraiskey <i>via</i> Hierapolis to Laodicea and back, by camel track and road, about	47
„ Seraiskey to Smyrna, by railway	143
Total	492

Suppose, then, that during a short interval we have been wandering about the site of Thyatira and Ak-Hissar, hunting up old inscriptions, making a few sketches, and looking over the madder fields, which yield the purple dye for which the town has for so many centuries been famous. Assume also, that we have seen something of its 10,000 industrious inhabitants ; that we have visited the Turkish, Greek, and Armenian schools, noting the satisfactory strides education has lately taken in that remote Lydian town ; that we have mounted our horses, ridden forth, and completed the distance of 26 miles, which intervenes between Thyatira and Sardis ; and that we have arrived at this once resplendent city, the ancient capital of Lydia.

SARDIS (5).

It would be incorrect to say that anything like the same degree of disappointment awaits the visitor at the first sight

of Sardis, which is the universal experience at Thyatira. On the other hand, the student—fresh from the study of a nation which flourished exceedingly under seven independent kings, and whose capital this was for over 500 years—casting his eye around upon the ponderous scattered relics, and comparing the present scene of desolation with past greatness, its evident poverty with past riches, must sympathise with the truth of Solomon's wail over the vanity of all human things.

The remains of Sardis are situated at one side of the plain of the river Hermus, under the snowy Mount Tmolus range (Fig. 14), and have both in ancient and modern times been somewhat inaccurately described as standing about half-way between Smyrna and Philadelphia. The truth is, the relics are about 50 miles by camel track, and 77 miles by railway, from the former, and only 28 miles or so from the latter. As to the origin and early history of Sardis, there seems be no agreement, or even the likelihood of unanimity, as nearly all the books the Greeks once possessed, containing the history of Lydia, are believed to have perished, so that our main resource for information is now Herodotus. This author begins the list of monarchs with Lydus, followed by the dynasty of the Heracleidæ, thus indicating the remote date of 1200 B.C. as the probable commencement of the capital. The latter dynasty clung to the throne for 505 years, and was followed by the Mermnadæ kings, whose annals are less dubious. These monarchs are now regarded by scholars as the really historical Lydian line, the first of whom was Gyges (B.C. 718), who gave his name to the pretty Gygean lake, lying on the opposite side of the river Hermus to the north of the city.

On the other hand, the distinguished author of 'Researches in Asia Minor' considers that Manes, the first king of Lydia, was no other than our old friend, Noah; that Lydus, the grandson of Manes, was Lud, the grandson of the patriarch. I shall not quote the arguments and conjectures in favour of this view; and will merely suggest that, as Herodotus, the

“Father of History,” lived so very much nearer the period in question, his notion is more likely to be accurate than Mr. Hamilton’s. In any case the pedigree of the Sardian kings will probably be deemed quite ancient enough if fixed at 718 B.C., and the point need not receive any further consideration.

The first four monarchs—Gyges (718 B.C.), Ardyes (680 B.C.), Sadyattes (631 B.C.), and Alyattes (619 B.C.)—were all successful soldiers, possessed with an insatiable hunger for their neighbours’ territory, like the three European vultures of our day, who apparently cannot keep their covetous eyes off the Balkan Peninsula. These ancient kings extended the Lydian Empire, until it embraced nearly all the Ionian cities and Asia Minor; but their ever-increasing lust for territorial acquisitions eventually proved their country’s ruin. The last of the quartette, Alyattes, was especially notorious for his earth-greed; and he pursued his conquests until his troops stood face to face on the river Halys with the great Medean monarch, Cyaxeres, when he died. Aware, doubtless, of the fleeting nature of earthly fame, Alyattes provided for keeping alive his memory, and preserving his bones by rearing a vast tumulus over his tomb, which was completed by the people of Sardis about 560 B.C. Originally this enormous cone of earth was much larger than the tritulating effect of the rains and storms of nearly 2500 years have left it at present; nevertheless, recent measurements show it to be 281 yards in diameter at the base, or half a mile round, with a height of 200 feet. As there has always been a difficulty among scholars to decide whence the earth was brought to rear this gigantic mound, the country around being an almost dead level for miles on every side, legend considerately steps in, and says that the work was wholly performed by the Lydian women, and that the Gygean lake collected in the hollow from whence the soil was removed.

The king whose name is most familiarly associated with Sardis, has always been Crœsus the wealthy, son of Alyattes, the last representative of the Mermnadæ dynasty. During

his reign the city and empire reached the acme of their greatness. At this period the Lydian court was probably the most magnificent the world ever saw, and it had attracted to it all the wisdom and art of Asia. The beautiful city of Sardis must have sat like a queen, with her enchanting Acropolis balanced as a resplendent coronet overhead. On the banks of the gold-pebbled Pactolus stood the famous temple of the Cybele, surrounded by exquisitely-modelled Ionic columns, and the auriferous stream, continuing its limpid course through the market-place, appropriately laved the walls of the Gerusia, where the monarch of millions kept and exhibited his wealth to the admiring, and probably envious, Greeks. There, too, could once be seen the stadium, the theatres, the music-halls, the hippodrome, the minor shrines, and the baths, all loaded with sculptured marble; the whole city being surrounded with a wall so massive and high that it resisted the utmost efforts of Antiochus, his engines of war, and his troops during more than a year's siege.

Amidst all this luxury and splendour, it must not be thought that the Lydians of the metropolis had no other pursuits than the mere gratification of the senses. They were a commercial as well as an artistic race; and as the necessities of trade soon demanded facilities for exchange other than mere barter, King Cræsus is believed to have been the first to make and issue a gold and silver coinage. Unfortunately, also, it is to the good people of Sardis, with whom at one period wealth seems to have become a drug, that we trace the invention of dice for gambling, and several games of hazard; but, on the other hand, posterity owes them much for their encouragement of such sages as Solon, Æsop, and the seven wise men of Greece. But the palmy days of this millionaire monarch at last came to an end. He, also, had inherited the earth-hunger of his ancestors, and the mighty empire of the Medo-Persians seemed ready for subjugation. Before Cræsus began his forward march into Persia, he, according to the manner of his time, con-

sulted the Delphic Oracle, and was told, in the ambiguous language of the Pythia, that he would certainly overthrow a great empire. For once the oracle proved correct. The conquered and desolated empire was his own.

After the defeat of Croesus, which occurred in the great plain close to the city of Sardis, the splendour of the latter waned; it passed into the possession of Darius, then to his son Xerxes, who was subsequently assassinated there. Alexander was its next possessor, followed by Antiochus, on whose defeat it became Roman territory, and was in Roman possession when the terrible words must have reached the Christian Church there—"Be watchful . . . remember . . . hold fast and repent. If therefore thou shalt not watch, I will come on thee as a thief, and thou shalt not know what hour I will come upon thee."*

Whether the warning of the Evangelist took effect or not, we cannot say; but history informs us that, during the reign of Tiberius Cæsar, Sardis suffered dreadfully from the two terrible earthquakes which shook to pieces so many of the great cities of Asia Minor. During the eleventh century the city and all its neighbourhood became Turkish; and in the course of the thirteenth it was utterly destroyed by Tamerlane, after which its name and history ceased.

Such was Sardis, one of the most wealthy and gorgeous cities of antiquity. Amidst its stupendous ruins only a few mud huts, inhabited by Turkish herdsmen, are to be seen. These, along with a little corn-mill or two on the Pactolus, the whole now known as the village of Start, comprise all that is left of Sardis, the queen and capital of Lydia.

PHILADELPHIA (6).

It matters little to the traveller with an eye for luxuriant herbage, desirous of visiting the site of ancient Philadelphia, how he approaches it, as the scene from every point of view

* Revelation iii. 2, 3.

during early spring is equally attractive and beautiful. Highly-cultivated gardens, vineyards, olive, pomegranate, and fig orchards seem to extend all round; and the more distant view embraces one of the most extensive, as it was once among the richest, plains in Lesser Asia. The modern name of the city is Allah-Scheir (City of God), and its inhabitants, mixed Turkish, Greek, and Armenian, number twelve thousand. It is situated at the base of Mount Tmolus, on a tributary of the river Cogamus, which eventually becomes the larger Hermus, and is said to be seventy-two miles to the eastwards of Smyrna by camel track, although by rail the distance is one hundred and five miles. It may be as well to remark here that all distances named in Asia Minor, except those on the railways and carriage roads, should be quoted and understood as mere estimates, because the actual mileage to a traveller varies materially according to the season of the year. In early spring, for example, when the streams are swollen with melting snow, the tourist may require to ride many miles along a river's bank, as the wooden bridges are frequently carried away by the sudden floods, before he reaches a moderately safe ford; or he may have to make a detour occupying hours, in order to circumambulate a wide morass. Under such circumstances it is not surprising that the accounts of visitors regarding distances sometimes differ, when one traveller experiences the winding and circuitous paths of early spring, while another in the late autumn, passing over the same ground, has been enabled, through the solidity of the marshes and the shrunken condition of the rivers, to traverse an almost straight line between the objects of his search.

Philadelphia is surrounded by walls forming an irregular square, in which many fine trees are seen mingling with the tall white shafts of the minarets, many mosques, and a few Greek churches. These and the numerous white-washed dwellings give, at a little distance, an air of handsomeness, comfort, and cleanliness, which is afterwards apt to lead to

disappointment, as, like most Oriental towns, its sanitary shortcomings on closer inspection are evident. Yet, notwithstanding the quantity of matter in the wrong place—as a great political authority once gently described dirt*—the whole region, from the earliest times, has borne a character for such healthiness, that visitors are assured that persons who have reached their one hundred and fiftieth year are far from uncommon there.

The city was founded by Attalus Philadelphus, a king of Pergamos, some time prior to the year 138 B.C. It may or it may not have possessed some of the splendour of Sardis and Pergamos, but undoubtedly not a building, or even the fragment of one, of any importance, dating from those early times, has survived. Distant as the city is from other towns, and still farther from the sea-board, it is unlikely that its sculpture could have been carried off to enrich other temples in Asia Minor, or been annexed by the covetous foreigner. We can account fairly well for the disappearance of the carved treasures of some of the other Apocalyptic churches—those of Ephesus, for example, are to be found in the British Museum, and in similar institutions scattered over Europe; but the old city of Philadelphia, with all its marble workmanship, its ancient massiveness, and its very name, have vanished as completely as if the whole had sunk into a volcanic abyss. This, indeed, in the opinion of competent authorities, is what has become of it. Turning to the second book of Tacitus, section 47 (Murphy's translation), we find that in the year of our Lord 17, twelve of the principal cities of Asia Minor were destroyed by an earthquake, among which were Sardis, Magnesia and Philadelphia, and that the surviving inhabitants were, by the Roman Senate, not only freed from taxation for five years, but their losses were estimated and relief given. Thus assisted, the citizens appear to have lost no time in rebuilding, in a plain and substantial manner, their defences and homes with fresh materials; and when, 78 years afterwards, the Angel of the

* Lord Palmerston.

Church was addressed by St. John (in the language of high commendation, without a threat uttered or fault found, as in the case of the others), Philadelphia was in a flourishing condition, and the Christian Church there was probably the purest of all the seven from the adulterations of paganism.

For about one thousand years thereafter history records but little of interest, until 1097, when Philadelphia and Sardis were both taken by assault by John Ducas, a Greek general, to whom Laodicea had already submitted. In 1106, the unfortunate place was again assailed, and in 1300 the Sultan Aladin, although not in possession, impudently handed the city over as the share of his general, Karamân. The townspeople, however, although entirely a commercial community, chiefly employed in dyeing, at this time cared little for the Sultan, and still less for his deputy. They accordingly defied both, and stoutly held their city, until relieved by the Roman legions in 1306. Time after time during the twelfth and thirteenth centuries was this undaunted corporation of dyers threatened and attacked without the smallest success to their assailants; but at last, after enduring a close siege of six years by the Sultan Bajazet, when famine had slain far more than the enemy, they surrendered, and the victor, in 1391, marched through the Philadelphian streets the proud vanquisher of a few animated spectres, and the owner of a charnel-house.

Although there does not appear to exist the least remnant of the original city on the surface—whatever there may be below—it would be untrue to assert that the ruins the traveller actually sees are wholly modern. There are relics on the site of the ancient Acropolis; and others are scattered over the lower slopes of Mount Tmolus; also on the spot tradition indicates as that upon which the monster Typho was crushed by the thunderbolt of Jupiter; but these, after having all been carefully examined by experts, are pronounced to be either Roman remains or the *débris* of Turkish houses. If there be any ancient fragments at all, they are to be found only in an old graveyard, where

certain sculptured crosses upon a few of the tombs may really mark the resting-places of some of the early Christians, and in the marble sarcophagi scattered about the streets, and used as drinking-troughs for cattle.

The modern town is the seat of a Greek archbishop, who rules over the twenty-five churches or so within the walls, and who, as well as his predecessors, enjoys a character for kindly, though simple, hospitality to all properly recommended strangers who call. Next to Smyrna, the diocese is said to be the largest in Asia Minor, extending from Sardis on the west to Laodicea on the south-east. It is much to the credit of this portion of the Greek Church, and to the many generations of staunch Philadelphians long since dead, that, all through the terrible periods of pagan persecution and Ottoman misrule, the lamp of Gospel truth faint at times, and occasionally dimmed by superstition—has never been extinguished; indeed, the Greek community of Smyrna, with a degree of pardonable pride, say that they can trace the light of Christianity in Philadelphia glimmering uninterruptedly through a long vista of eight hundred years.

In addition to the industry of these people, their sturdy independence, and their kindliness and hospitality to strangers, there is a spirit of honesty among them—probably part of their distinguished Christian heritage—which should not be passed over in silence. Many examples might be quoted, but perhaps the following case may be sufficient:—During the spring of 1885, among the many applicants for silkworms' eggs to Mr. John Griffitt of Bour-nabat, near Smyrna, were some Greeks and Turks from Alascheir (Philadelphia), who in former years had met with irritating disappointments, owing to the ravages of worm disease. Formerly, in order to obtain even a small crop of cocoons, these people had been in the habit of purchasing a large quantity of eggs, in the hope that probably one-fifth, or perhaps one-tenth, of the *graine* might yield healthy worms. On incubating the eggs furnished by Mr. Griffitt, their surprise was only equalled by their consternation to

find that not only did every egg yield its little worm, but that every worm was tremendously healthy, and with a boundless appetite for food. What were the honest people to do? Accustomed as they had hitherto been to moderately-sized families of fifty or sixty thousand worms, and knowing by experience that it took all their energies to supply such numbers with the requisite sustenance, how were they to satisfy the cravings of millions of robust and hungry caterpillars, as every forty thousand healthy silk-worms consume during their gluttonous although short career nearly one ton of mulberry leaves? In this dilemma a fine, honest specimen of the Philadelphian farmer, a Turk, came to the aid of his fellow-townsmen; he took over the entire family, fed the worms to maturity, harvested an unprecedented crop of cocoons, fairly divided the produce, and in due time remitted to Mr. Griffitt his full share.

I shall conclude this short review of Alascheir and its neighbourhood with an amusing anecdote, in which the same Turkish agriculturist figured early in 1885. An enterprising young man of Smyrna had been for some time endeavouring to introduce reaping machines into the country, and persuaded this progressive farmer to give one a trial upon a field of barley. The Turk hesitated at first, but afterwards agreed on condition that a pair of bullocks should be used to drag the implement, as the Moslems are very fond of their horses, and look upon employing them in common agricultural work as degrading the animals. On the arrival of the machine at the railway station, two huge, ungainly bullocks were duly provided, and were yoked on either side of the pole; but the unusual appearance of the article, its brilliant colours, and the unaccustomed noise it produced as it moved along, were clearly not to their taste. However, the bullocks, with the driver perched knowingly behind, plodded slowly with the reaper to the edge of the growing crop; but, when the action was turned on, at the very first revolution of the windmill-like appendages, the alarmed animals elevated their tails, bellowed distractedly, and

bolted with a degree of promptitude and speed no one could have expected in such clumsy creatures. Away they careered over hill and dale unguided, for the amazed and luckless driver had already been shot up into the air out of his little iron seat with the violence of the motion, like the leather-covered bladder from the toe of a football player. Arresting the runaway animals was therefore hopeless, as the machinery being now in full whirl, the faster the bullocks flew over the face of the earth the quicker the terrifying wings revolved, and the more awful to their ears the noise behind them became. At length, the animals having smashed the reaper into pieces, quietly trotted home, with a tail of twisted rods and fractured woodwork bobbing behind them. The Turkish farmer philosophically attributed the result to the will of Allah, and the owner of the remains returned to Smyrna a sadder and probably a wiser man.

Although the railway is not the original cause of the present prosperity of Alascheir, there is little doubt that this thriving city, and the other seventeen towns and villages between it and Smyrna, owe much to the well-managed line which connects them with the sea-board. The entire distance, as already mentioned, is 105 miles. By this railway the tourist can reach Sardis much more easily and expeditiously than by riding; the distance from Smyrna is $76\frac{3}{4}$ miles.

From Philadelphia to Laodicea is a long and fatiguing ride of about sixty-five miles, which few tourists in these days of railway facilities will care to undertake. The better plan is to return by train from Philadelphia to Smyrna, and travel thence by a different line to the last of the sites of the seven Asiatic churches.

LAODICEA (7). *Via Hierapolis.*

Having decided in this way, the traveller takes a ticket to Scraikeuy the present terminus of the Smyrna and Aïdin Railway, a distance of $143\frac{1}{2}$ miles. Reaching this village

and making friends with the obliging station-master, lodgings for the night may be obtained, and horses, a guard of Turkish soldiers, and a guide arranged for the following morning. There is a fairly good road most of the way, with a few streams to cross; and as the ride under ordinary circumstances between Seraikeuy and Laodicea occupies from $3\frac{1}{2}$ to 4 hours, the distance may be reckoned as over 20 miles. Should the tourist, however, have ridden round *via* Pergamos, Thyatira, Sardis, and Philadelphia, he will have passed over a course of 245 miles or so, to reach the same destination. The advantage gained by proceeding direct by railway from Smyrna lies in the convenience of breaking the journey at the Ayasouluk station, 48 miles from Smyrna, spending some hours looking over the ruins of Ephesus, and continuing the run to Seraikeuy in the afternoon. Next day, starting before dawn, he may visit the wonderful marble terraces and the gigantic ruins, the theatres, circus, gymnasium, baths, tombs, and temples of Hierapolis; examine the remains of Laodicea, some six or eight miles distant, afterwards; and be able to return to the railway terminus at night. This is by far the best arrangement, as in Hierapolis there are wonders to be inspected, such as the tourist will probably require to go to the north of New Zealand* to see paralleled; while Laodicea is such a fragmentary ruin that a special visit to it alone must lead to disappointment.

Suppose, then, that we have made up a party at Seraikeuy, as related at page 244, and have trotted out upon the vast plain through which the river Mæander flows (Fig. 47), the first sight one catches of ancient Hierapolis, after some hours' riding through dust, over streams, and across one end of a black, treacherous-looking morass, suggests a horizontal

* Since the above was written, the white and pink terraces of Lake Rotomahana, the natural objects referred to, were wholly destroyed by a volcanic outbreak of Mount Taravera, which commenced on the 10th of June, 1886; so that the marble slopes of Hierapolis are probably the only extensive specimens extant of such unique natural wonders.

streak of white paint drawn a little way above the base at a concavity in the Messogis mountain-range. This white appearance marks the ruins and marble terraces of one of the places alluded to by the Apostle Paul in Colossians iv. 13, "For I bear him (Epaphras) record, that he hath a great zeal for you; and them that are in Laodicea, and them in Hierapolis." The modern name of the latter ruin is Pambouk Kalesi (Cotton Castle), so called by the Turks on account of the white marble-like incrustation its hot springs deposit on everything their waters touch or flow over. It is impossible within a limited space to convey an idea of the extraordinary aspect this vast series of wavy white terraces, rising above the plain to the height of about 300 feet, present to the eye. From one point of view their rounded surface, greyish milky colour, and sinuous shape, suggest the spectacle of a solidified downpour of white wax over a succession of parallel rocky ledges; seen from above, the effect is what we should expect were a lake of semi-liquid stucco suddenly to burst over the steeper slopes of the Castle rock at Stirling; while inspected from below, the feeling is as if a pipe-clay river, two miles wide, had been arrested in mid-career by the mantle-stroke of an Elijah, or a Niagara had been instantaneously frozen and petrified into marble. The slopes of the terraces are hollowed out in every direction into numberless little cavities or baths, forming troughs of varying depths and diameters, of dazzling whiteness where the hot water is still flowing, but losing their purity of colour, and merging into different shades of grey, where the incrustation is older and dry. Some of the conduits, which once conveyed water from the central hot-pool, near the ruins of the principal theatre, to the front of the terrace upon which the city was built, are filled up solidly to the brim with lime deposit, and now form admirable, hard, level footpaths, from which the strange scene can be surveyed without leaving the saddle. Besides these solidified canals there are several immense ponds or small lakes, doubtless once filled with hot-spring water as a

reserve for the public baths ; but these also present a firm, pure white surface, on which the iron shoes of the horses ring merrily as they trot over what looks like a plain of hard-frozen snow.

The Hot Pool, from which all the water seems to issue, is irregular in shape, yet looking as if at one time it had been built round with white marble blocks, subsequently shattered, and the form modified by the action of earthquakes. Some parts of it are deep, and others shallow ; but everywhere, as far as the eye can penetrate beneath the steaming surface, the bottom is strewn with fragments of marble columns and carvings, as if some magnificent building had once enclosed the Titanic boiler. It is always full to the brim, the water shows a temperature of between 85 and 90 degrees Fahr., and has been flowing from prehistoric ages. Probably the prettiest feature at present about this bath of Vulcan consists in the clumps of fragrant oleander and beautiful pomegranate trees and bushes, which partly surround and nod over the transparent fountain, as if inviting the dusty traveller to have a dip under their luxuriant shade.

The standing ruins of Hierapolis are some four or five miles in circumference, and exhibit buildings of great massiveness, constructed of enormous blocks of limestone, but without a trace of cement. These blocks had all been truly cut and laid upon one another so accurately that even now, after the lapse of many centuries, there would be difficulty in pressing the blade of a knife between some of them. When built into position the perpendicular surface of each block was perforated with square holes for metal bolts, to which the carved white marble slabs, with which the outside and inside of the chief erections were decorated, had been secured. It need hardly be said that none of these decorations remain. Earthquakes, particularly the terrible convulsion of A.D. 65, which destroyed the adjoining cities of Colossæ and Laodicea, utterly ruined Hierapolis, which seems never to have been rebuilt. The elements, aided

by the hand of the spoiler and the common burner of lime, have long ago stripped these vast venerable ruins of every vestige of their marble panelling and sculpture, leaving only the colossal skeletons for the inspection of the stranger.

From the north-western extremity of the upper terrace the traveller, about to visit Laodicea, leaves Hierapolis. Leading his horse down the slippery and occasionally steep marble slopes, and picking his steps, in rear of the guide, carefully through the verdant but dangerous bog which extends for miles in the neighbourhood of the rivers Mæander and Lycus, a couple of hours' riding, although the actual distance is only about eight miles in a direct line, brings him to Laodicea (Fig. 49).

This old city of ancient Phrygia was originally recognised by the name of Diospolis, or the "City of the Great God." Afterwards, according to Pliny, it was known as Rhoas, and finally was called Laodicea by Antiochus Theos, in honour of his wife Laodice. At present the spot appears in the Turkish histories and newspapers as Eski Hissar, or Old Castle, and is found by the traveller about a mile and a half within the bifurcation of the little rivers Asopus and Cadmus, where seven gentle hills cluster about the terminus of a spur of Mount Cadmus (Fig. 45).

Although so far inland, and therefore remote from the opportunities of amassing wealth which communities like Ephesus, Smyrna, and Pergamos enjoyed, Laodicea soon became one of the most thriving cities in Asia Minor through its wool trade, particularly in connection with a breed of black sheep, for which the neighbourhood remained long famous. It was the abundance of rich pasture to be found in the large plain, watered by the rivers Mæander and Lycus close at hand, that doubtless made wool the staple of the city's industry. Probably the same inducements attracted the thousands of Jews, who from an early period formed a considerable section of its inhabitants; and we may feel sure that it was through the latter circumstance that Christianity obtained a footing there.

Scholars are unable, I understand, to say conclusively that St. Paul ever really preached in Laodicea; but its contiguity to Colossæ, and the reference to the former city and Hierapolis, in the verse from Colossians already quoted, seemed to favour the likelihood that the apostle had been accustomed to visit and proclaim the Gospel in all three, occupying as they did the points of a triangle, and distant from each other only some eight miles. Whatever be the fact, there can be no doubt that Laodicea was an important, wealthy, and a noted ecclesiastical city long after the days of St. Paul; and even after the Apocalyptic warning. It became the seat of a Metropolitan with sixteen suffragan bishops, and in the year 361 was elected by the early Christian Church as the place of meeting for fixing the Canon of Scripture, as the Jerusalem Chamber in Westminster Abbey was appointed in 1870 for its revision.

After the fall of the Roman Empire, the great rich city began to decline, and the progress of decay was hastened by repeated earthquakes. In 1097 it fell a prey to the Turks; it changed masters in 1120, and again in 1161, when its remaining bishop was assassinated, and most of its surviving inhabitants carried off into slavery. The German Emperor Barbarossa rescued it for a short period of six years, but in 1196 the Turkish rule was again established. In 1255 Tartar hordes swooped upon the unfortunate city while under the temporary care of the Greeks, but its remains were recaptured by the Sultan, and are his at present.

At this moment Laodicea bears the traces of the Apocalyptic threat and punishment in every feature. It is a vast scene of desolation, with not an inhabited house or hut visible anywhere. Nothing meets the eye except shattered, tottering piles of immense cut stones, rifled sarcophagi, and fragments of inscribed marble tablets. The dead, even, have had to sustain a share of the punishment, as the steep hill, around which the road winds upwards from the plain to the site of the ancient city, is covered with

empty stone coffins scattered about in the wildest disorder. This desecration has not necessarily been performed by the hand of Barbarian or Turk alone, although, doubtless, these did their share, as the entire region round about is terribly volcanic, and has been frequently subjected to the disintegrating agency of earthquakes. Vast as some of the remains may be of theatre, circus, amphitheatre, gymnasium, and aqueduct, they all exhibit a repulsive and forbidding rather than a picturesque aspect; and the very hills upon which they totter seem so scorched and unsubstantial that the visitor in most cases is rejoiced to get away back to Smyrna, and leave the whole sad scene behind.

The question may now be asked, "How can you or any one else tell with certainty that those sites described were really the places once occupied by the seven churches mentioned in the Apocalypse?" To this question I shall reply by relating with a little more detail than at page 256, a single personal experience. On the occasion of my visit to Laodicea, I was accompanied, besides the Turkish escort, by an English friend, a good Greek and Turkish scholar, and by two Greek gentlemen of Smyrna, all three enthusiastic antiquarians. On our way up the hill to the ruins, the Greeks had observed among the numberless fragments the corner of a white marble tablet, in size like that of an ordinary tombstone, sticking out of the *débris*, and occupying a position which indicated immunity from disturbance for a long period of time. The heavy lids and boxes of great stone coffins were strewn thickly around in every direction, along with other marble slabs and sections of columns, on some of which traces of Greek lettering and ornamental carvings could still be seen. Some kind of instinct, the fruit of many former inscription-hunting expeditions, led my companions to believe that this parallelogram of marble held some secret in its keeping which might be extorted. Accordingly, our men were set to clear away the earth and stones, and on our return from the ruins above, some hours

later, by the aid of the balance of our drinking-water, brushes, and squeeze-paper, an impression of the sculptured surface was taken.

There are doubtless many anglers among my readers, and I need not picture to them the feeling of intense excitement which precedes the capture and landing of an unusually fine trout or salmon. We have in this old Britain of ours men of peace and men of war; men accustomed to the pulpit, the camp, the forum, the hospital, and the mart of commerce, all of whom at some time or other have doubtless had their moments of tingling suspense rewarded by brilliant triumphs. Such various phases of human emotion in the different members of society can be perfectly understood by the youngest individual who may read these lines, yet I question if it be possible for any human being to realise the feelings of our little party on that occasion, as we stood upon the frail crust of that volcanic hill amidst the relics of antiquity, watching the paper impression being carefully separated from the marble. Slowly it was removed by well-accustomed hands, bringing with it the old-world secret which had been carved there, in the quaint Greek letters and spelling of 2000 years ago. What was it? Only a mutilated date, and the single word, *Laouthike* (Laodicea).

Here, then, was another added to many such proofs previously collected upon the various sites by others, which, taken in connection with the indications of tradition and history, leave no further room to doubt the genuineness of the recognised positions of the seven churches in Asia.

Our journey is now ended. We started from Smyrna, and we have returned to the same point after an excursion in imagination of 716 miles, during which I have endeavoured to depict those interesting Apocalyptic relics. The subject, as the reader will have seen, is a wide one, and teems with matter for the historian, the antiquary, and the artist, as well as for the student of Holy Writ. As the

plains of Troy, not more than seventy miles distant from Pergamos, have already yielded up to the pick-axe and spade of Dr. Schliemann and others, numerous invaluable objects of the greatest interest, connected with the heroic period of paganism, might not the sites of some at least of the Apocalyptic churches, if trenched and examined with similar care, produce a rich crop of Christian relics, in the shape of lost books, parchments, and inscribed tablets, immensely more valuable to humanity than all the Trojan trinkets ever likely to be found ?

CHAPTER XXVIII.

SMYRNA TO CAPE MATAPAN.

FOUR months spent so pleasantly and usefully as those which gave rise to the preceding pages, could hardly have terminated without producing feelings of regret that the charming experience was over. From the date of my landing at Smyrna, on the 14th March, to that of my embarkation on board the steamship "Kedar," on the 7th July, 1885, my time had been fully occupied. I had visited many interesting spots; I had received unlimited kindness and attention from the Turkish authorities, from many distinguished Greeks, and esteemed members of the foreign community; I had acquired a new circle of warm and sympathising well-wishers whom I trust ever to retain; and I had satisfactorily accomplished the primary objects of my pilgrimage to Asia Minor.

Of the friends and acquaintances thus gained among the Turks were—His Excellency Hadji Nachid Pasha, Governor of the province of which Smyrna is the principal city (now Governor of Syria); Hussein Hilmi Effendi, his obliging and accomplished Secretary; Mehemed Noury Bey, Chairman of the Local Board of Agriculture; Kadri Bey, Finance Minister; Teufik Bey, Procurator-General; Hadji Mustafa Effendi, Mudir of Nymphio; Osman Pasha, Commander of the Forces in Smyrna; Yousuf Zia Effendi, Chief of the Industrial School for Orphan Boys; Achmet Kiazium Effendi, Director of the Turkish Hospital; and others.

Among friendly Greeks were the two chief dignitaries of

the Church, Archbishop Basilius, Metropolitan of Smyrna, and Bishop Anathesius Kyrilos; Father Seriphino, Economo of the Greek Hospital; A. E. Kondoleon, Librarian of the same useful and well-managed institution; M. Alexandre Christacki, the municipal head, or Mayor, of the Greek community of Smyrna; M. Elia Christacki, his younger brother, of the Tobacco Régie, Constantinople, and his amiable wife and daughter; Doctors Alexandroff, Romanidhy, and Theologheithis; M. Miltiades D. Seizenis, Editor of the *Armonia*, and other literary gentlemen, whose names have escaped my memory and note-book; M. Fokion Poletheros Khyvotos, the foremost Greek authority on law in Smyrna, his lady, and pretty young family; M. Georges Boubli, Rédacteur-en-Chef du journal Turc *Le Réveil*, a distinguished Armenian lawyer, occupying also a leading position; M. Jean D. Platys, Chef de la Poste Internationale Ottomane; Messrs. Fontrier and Marcopoli, enthusiastic antiquarians, inscription-hunters, and full of information about Asia Minor; the Messieurs and Madame Pasquali, representatives of ancient and honourable Smyrna commercial families; M. Joanni Mavroidhy, of the American Consulate, his sister and family; Constantine Alexandroff, and his clever nephews and nieces, ever brimful of story and anecdote; M. Romanidhy, Madame, and their bright and attractive youngsters; M. Sponti; M. Thales Malcozzi, the obliging Agent of the Cunard Company; M. Bon, and his brisk, alert mother, besides a catalogue which might readily be extended.

Of my own compatriots to whom I am indebted for many kindnesses, I ought to mention my hospitable entertainers, Mr. and Madam Griffitt; Mr. William Griffitt, and all his estimable family; Mr. and Mrs. Blackler; the Rev. Barnaby Smith, Chaplain to the British Consulate; Mr., Mrs. and Miss Paterson; Mr. Clarke; Mr. and Mrs. Jolly, and Mr. Edwards, of Constantinople; Mr. Hutton, Station-master at Smyrna; Mr. Wade of the Smyrna and Cassaba

Railway, not forgetting his interesting, fairy-like child, known locally as "Little Earthquake."*

Having made so many kind friends, the parting became all the more difficult; nevertheless, it was done, and at 7.30 on the 7th of July my last glimpse was obtained, in the gathering gloom, of Smyrna, as the steamer screwed her way rapidly out to sea (Fig. 12).

The lonely feeling of isolation, which is apt to creep over a stranger, when, for the first time, he joins a party who have already made friends with one another on board, was not experienced in the present instance, as the complement as well as the individuality of the passengers remained the same as at Constantinople. The position of matters was similar to what would have happened had we been on a yachting excursion, and arrived a few days previously at Smyrna; mutually agreed to separate for a time, again to reassemble for the purpose of continuing our voyage. We had reassembled, there were no additions to the party, and we commenced our homeward run together; but as these "Notes" gave very little personal gossip on the outward run, it is not intended to make any difference now. It will only be necessary to add, therefore, that we all quickly settled into our old places at table and elsewhere, and things went merrily as a marriage bell.

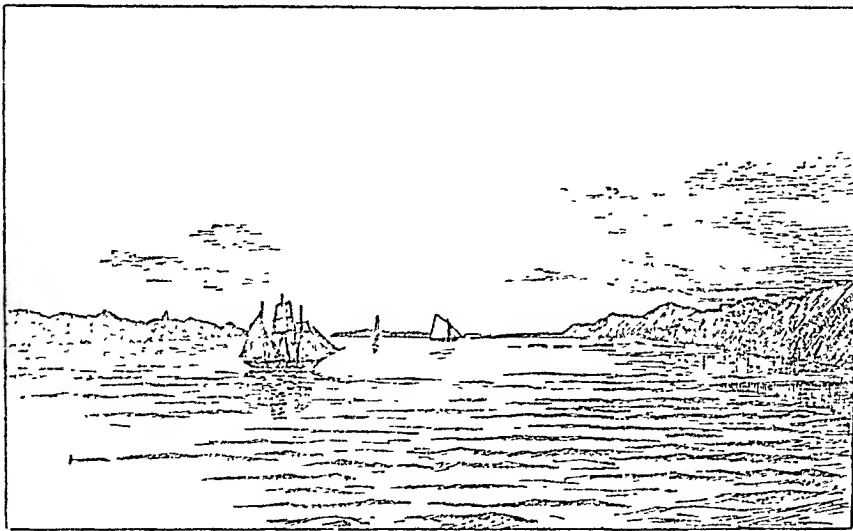
Before daylight next morning a few of us were on deck, and found that the ship was dashing splendidly through the Greek Archipelago. Once more appeared a brilliant effect over the island of Khios, and we early birds stood in rapt admiration of the splendid tints as they shot out on all sides from the gorgeous luminary, changing and being modified every moment, the result of each additional second appearing more enthralling to the eye than that seen

* The infant was born during the night of the last dangerous convulsion in Smyrna, a few years ago. She was snatched out of her cradle by the alarmed nurse only a minute or so ere the ceiling of the bedroom and a partition fell, smashing the cot to pieces. On account of the narrow escape, the child came afterwards to be known and spoken about among the townspeople as "Little Earthquake."

immediately before. Further ahead rested, on the pellucid waves, the lovely group named the Psara Islands, whose very enchantment seemed this soft July morning to falsify the terrible tale of blood which was once enacted there. It appears that during the struggle of the Greeks for their independence, in or about the year 1822, the inhabitants of those islands had been successful in inflicting severe damage upon the Turks ; accordingly, when a favourable opportunity arrived, the Sultan of the period determined to crush them. A fleet of two hundred vessels was got ready, they were filled with soldiers ; and on the 3rd July, 1824, the armada appeared before daybreak, and landed 14,000 troops, who proceeded to attack the principal town. After a most gallant resistance, finding themselves exhausted, and knowing the ruthless character of their enemies, the islanders promptly made their decision ; they blew up their powder magazine, and vast numbers on both sides were immediately hurled into eternity. The carnage is described as having been awful. Only about two thousand of the inhabitants altogether escaped from the islands, about three thousand had instantaneously disappeared, presumably in the explosion, and of the Turks four thousand were missing.

Soon after leaving those bewitching islands well in rear, in the clear distance gradually loomed forth the large stretch of Negropont and its smaller neighbour Andros, forming the largest of the Cyclades group, with a population of 28,030 ; and the former, scarcely entitled to demand the honour of being considered an island, although it possesses a family of 80,000 people, as the sea passage between it and the mainland of Greece is said to be only seventy feet wide. The island of Andros seems to have always been known by six other names ; but in modern times the usage is to recognise it by that of its chief city, Andros. It possesses a fair harbour, near which once stood a temple sacred to the worship of Bacchus, within the precincts of which was a fountain whose water during January is said to have tasted

of wine. This rather pretty island measures twenty-one miles in length by eight in breadth; and its double-peaked mountain Kovari, 3204 feet in height, is a noble object in the landscape. Euboea, or Negropont, is, after Crete, the largest island in the Ægean Sea, and measures 105 English statute miles in length by 30 miles in breadth; but at one part it dwindles to only four miles across. A chain of mountains intersects the island to the north-west and south-east, and culminates, in Mount Delphi, 5730 feet in height, which is said to be scarcely ever free from vapour



ANDROS ISLAND, THE LARGEST
OF THE CYCLADES.

FIG. 79.
DORO CHANNEL.

EUBOEIA ISLAND, OR
NEGROPONT.

or snow. Its two other lofty peaks are Mount Okhi, 4840 feet, and Pyxara, 4400 feet. Large and fertile as this splendid island is, it is but sparsely cultivated, yet the climate is good and healthy, with no lack of water. It also abounds with magnificent pine and chestnut forests of ancient growth; and its pastures are so rich that the population, although not neglecting the production of cotton, wheat, fruit, honey, wine, and oil, seems to prefer the breeding of cattle, and to export wool, hides, and cheese. A trade might also be done in metals, as several kinds

are found; and its numerous hot springs would seem to recommend it as a sanitarium. Like all the other islands of the *Ægean*, it has frequently changed masters. Ionic Greeks appear to have been its first colonisers, and were followed by Athenians, who created in it a number of important independent states. These were afterwards subjected to Athens, and held until Philip of Macedon became their conqueror. The Romans followed; in 1204 the Venetians had their turn, and gave it its modern name of Negropont; then came the Turks, who held it until 1821, but at a call to arms by a lady named Modena Maurogenia, the yoke of the crescent was burst; and since then the island has been incorporated in the kingdom of Greece. The channel which separates Negropont from Andros is six miles wide, and the contrast between the two islands is most striking, the one exhibiting magnificent chestnut forests extending far up the sides of its mountains, while the other is comparatively bare (Fig. 79).

Having edged away from the Doro Channel and its two fine islands, the steamer was for a short time in a wide reach of the sea, crossing the mouth of the Petali Gulf, shortly reaching the Zea Channel leading between the island Makro Nisi, near the mainland of Greece, and Zea, about eight miles further off. This part of the voyage seemed to me exceedingly interesting, pictorially, on account of the number of island masses or continental heights seen in various directions. On the left rose pretty Zea, and on the right Makro Nisi, with the high land of Greece towering over it. Far away to the left peeped the tiny isle of Gyaros, now called Jura, which the Romans used for many a year as a penal settlement. Still further off in the same direction, like a mere film on the horizon, Syra could with difficulty be distinguished, and I regretted that it lay so far out of the steamer's track, as I wished to have seen again closely my friend of the outward voyage (Fig. 10). Beyond Zea appeared Therma or Kythnos, and far beyond the other end of the channel, like a speck on the sea,

towered the rocky islet of St. Georgio. Of the first of these islands little seems to be known beyond the legend that the celebrated Helen of antiquity spent some time upon it after the siege of Troy, and gave it her name. It is now known as Makro Nisi, simply on account of its shape, those Greek words signifying "long island." Its appearance in passing is not attractive, yet it serves as a foil or foreground for the mountain masses near the end of the Athenian peninsula. But if Helena has little to attract the modern tourist, her opposite neighbour Zea, about eight miles distant, is not so deficient in charms. This little territory, measuring nine miles long by five miles broad, is situated about thirteen miles south-east from Cape Colonna in Greece, and anciently bore the names of Co, Cos, Coos, Ceos, and Keos. It was the birthplace of Hippocrates and Apelles, Simonides and Bacchylides; has always been famous for its fertility, wine, and silk; and mythological writers add, for the whiteness and extreme tenuity of the dresses worn by its women. Ancient authors also assert that, on account of some offence given by those lightly-dressed ladies to the goddess Venus, they were changed into cows; however, the potency of the ban must long ago have become exhausted, as the island is now quite flourishing, and has a population of 5700. The town Zea stands on a small conical hill on a spur of Mount St. Anna, and is approached from the port St. Nikolo, having a depth of water suited to the largest ships, by a steep but fair road. Its ancient remains are unimportant, and include some impressions of gigantic footsteps in blocks of marble, and a colossal lion carved in bas-relief upon the face of a rock a little way east of the site of ancient Zulis. Thus little Zea has something to boast of in having produced one of the most learned and successful physicians of antiquity in Hippocrates; the greatest animal-painter the world ever saw in Apelles, whose portrait of the charger of Alexander was so true to nature that a passing horse neighed when it saw the picture; and two distinguished poets like Simonides

and Bacchylides, uncle and nephew, the former of whom added four letters to the Greek alphabet.

The other two islands named above are uninteresting beyond the fact that the former, Therma or Kythnos, has always been famous for its cheese; and the latter, St. Georgio, from its height, offers an admirable beacon for the guidance of ships wishing to enter the Gulf of Athens, as it is only some twelve miles from the nearest point of Greece.

In the course of the day the Zea Channel was safely run through, the rocky island of St. Georgio was passed, simmering in an atmosphere heated up to ninety degrees, and towards the cool of the evening the wild, remote, little Belo Poulo seemed to hide away the setting sun behind its bare crags. Being directly in the tract of vessels bound for Athens, it is furnished with a lighthouse on a moderate summit on its north-west point. The entire island is only two miles long, and it is situated thirty-two miles from Cape Malea. Before the daylight had quite departed, our old friend of the outward voyage, Karavi (Fig. 9), came in view, and was quickly planted besides others in our sketch-books. The neighbourhood of this island has a good reputation for fish, notwithstanding the great depth of water around and near, varying from one hundred and seventy to five hundred fathoms.

The longest day, however, has an ending, but to some of us on board this one terminated much too speedily, as our hopes had been high in the morning that we should pass close to the grand capes, Malea and Matapan, ere the daylight failed, and be enabled to transfer their rugged features to our pages. In this hope we were disappointed, as half-past ten at night arrived before the steamer began to round the former, when it was too dark to see anything. It sometimes happens on such occasions, when one faculty is smarting under frustrated prospects, that another pushes to the front and occupies the void. On this night of gloom and almost insufferable heat, when the stars alone were visible, and when to be below was misery, all the passengers

kept the deck until a late hour, comparing notes, especially concerning the interesting shores we were passing so near but could scarcely distinguish. For example, it was remarked that we had now entered, as it were, upon the great battle-field of antiquity, where a country, fully one-third smaller than Scotland, had defied the whole power of the Athenians and their allies during the twenty-seven years of the Peloponnesian war. Then the domestic arrangements of the Lacedæmonians were discussed, particularly the austere manner in which their children were educated. This austerity found little favour with the ladies on board, and the stern courage of the Spartan women, who sometimes put to death cowardly sons for acting upon the rhyme,

“He who fights and runs away
May live to fight another day,”

had as few admirers. Yet all were agreed in their appreciation of the Laconian nation for their splendid courage, intrepidity, love of honour and liberty, and aversion to sloth and self-indulgence. “Two of their customs I can scarcely say that I am in love with,” said a sprightly unmarried member of our party, who had distinguished himself by walking one or another of the ladies on board about the quarter-deck for hours at a stretch. “That Lacedæmonian habit of noble ladies going upon the stage and playing for money seems to me most objectionable—worse, I think, than that of a few silly jades in London in our time doing the same thing without remuneration.”

“And what was the other objectionable feature in the conduct of the Spartan ladies which your Lordship disliked?” responded a pert but privileged little lady’s maid who had hitherto afforded considerable amusement to the passengers.

“Well, you know—that is to say—in fact, all things considered, perhaps you’ll kindly excuse me going into further particulars,” answered the noble critic; “indeed, I’d rather drop the subject.” But Miss Julia Judkins was

of a different opinion, particularly as she knew that at the moment her mistress was engaged in the saloon writing up her diary, so she immediately returned to the charge:—

“Of course if you won’t say anything no one can force you. Would you be surprised to learn that I have a notion what was passing in your mind?”

“I certainly would,” replied the sprightly unmarried young man.

“You, sir, were thinking of the manner in which those determined damsels of Lacedæmon sometimes treated flirts of the male sex.” The startled youth winced, looked uncomfortable, but said nothing.

“How it was customary for the women to drag forth all the confirmed bachelors, trot them round the altars, and belabour them time after time until the shame and ignominy of the performance drove them into matrimony.”

Evidently the little lady’s maid scored on this occasion, as our friend scarcely waited for her last words ere he disappeared for the night.

Meanwhile the steamer had been cleaving her way along the end of the Peloponnesian Peninsula, across Vatika Bay, towards the four-mile wide channel extending between the islands Cervi and Cerigo, about which some remarks were made in an earlier part of this work; and as the lighthouse on the former was the last seen of Greece on this voyage, so the following sentence or two may aptly conclude this part of the subject. The Peloponnesus altogether scarcely extends two hundred miles in length by one hundred and forty miles in breadth, and yet what a commanding influence that little State, its great men, and their doughty deeds, have exercised on all succeeding generations. Its princes successively protected the Sicilians, Carthaginians, Thracians, Egyptians, Cyrenians, and others from their enemies. Leonidas with a devoted band of three hundred soldiers successfully resisted for a time at Thermopylæ the swarming millions of Xerxes; and Lycurgus extirpated all luxury, forbade intercourse with other nations lest temptation

should be introduced, and degraded the coinage to heavy discs of brass and iron in the interests of honesty. This interesting peninsula is also known in modern times as the Morea, about the origin of which there is a difference of opinion, the probability being in favour of the name having been derived from the Latin word "*morus*," the mulberry tree, which grows there in great abundance.

During the night the steamer crossed the large Gulf of Marathonisi, and at two o'clock in the morning the furthest south point of Greece, Cape Matapan, was left in rear.

CHAPTER XXIX.

CAPE MATAPAN TO GIBRALTAR.

WHEN one's steamer is gliding softly like a fish through the musical ripples, it is exhilarating to gaze on the deep blue of the Mediterranean with the clear, bright eye of joyous health, to scan its stupendous capes, snow-clad peaks, lovely islands, and classic gulfs, under the glamour of the golden sun; but a different complexion creeps over the scene when that eye is jaundiced by the demon of biliousness, when the heavens are obscured by driving clouds, when the merry wavelets have become threatening billows tumbling about under changeful winds, as if Boreas, resenting confinement to his Hyperborean blast, is raising an independent tempest from every corner of the heavens, and when one's interior is in a state, not merely of covert mutiny, but of rude, open rebellion.

Having cleared Cape Matapan at an early hour of the morning, we were fairly out of the *Ægean* Sea, which comprises that portion of the Mediterranean situated northward of the great island of Candia or Crete, bounded on the west by the coast of Greece, and on the north and east by the shores of Turkey. The steamer was therefore approaching the broadest part of the basin, crossing the opening of the Adriatic and steering straight for Malta, consequently it was entirely exposed to the fury of the gale. Some landmen, under such circumstances, are gifted with the rare and enviable power of defying sea-sickness; a few ladies, also, are able to laugh both Boreas and Neptune

to scorn; but the greater number, not to mention many a seasoned sailor, speedily become pale, limp, and useless at the approach of a Mediterranean storm. On a previous occasion, some years before, I had had a sample of such a tempest a few hundred miles to the north-west on the same sheet of water, during which all on board, except the officers, sailors, and a steward or two, were prostrated. So vivid an impression did it produce on my mind at the time, as well as such admiration for the splendid activity of a servant of one of the passengers, named George O'Blyn, but called Goblin for shortness, during that fearful night, that the following rhymes* were part of the outcome after all danger was over:—

A WILD NIGHT IN THE MEDITERRANEAN.

The notion among landsmen 's not unknown
 That th' Mediterranean is a placid sea;
 But such forget the wild Euroclydon
 Which drove th' Apostle under Claudia's lee.
 It might not be this gale which caught, anon,
 Our friends, yet, doubtless, you will think with me,
 That if a sim'lar tempest blew upon
 Them, even in a modified degree,
 The waves would—though, perhaps, not mountains high—
 The strength of e'en the toughest stomach try.

What wonder, then, that in the ship's saloon
 Some interesting features met the view.
 Three classes formed its inmates, very soon
 To be abbreviated into two,
 And presently reduced to only one,
 Consisting of old voyagers, a few.
 The first the pallid, who craved as a boon
 To be removed at once from 'midst the stew;
 The second, squeamish, trying to o'ercome
 Their awkward feelings with small nips of rum.

* These stanzas occur in an unfinished metrical romance, entitled
 "Winifred."

But all proved valueless, for still the wind
 Kept shrieking through the rigging, loud and drear ;
 The hoary billows followed fast behind,
 Each moment threatening the deck to clear.
 One paddle, fruitlessly, the air would grind,
 The other, box and all, would disappear ;
 So, even those who'd comfortably dined,
 Admitted that they felt a little queer.
 In short, except the Goblin, all below,
 Collapsed ere reaching Bonifacio.

Not passengers alone, but others too,
 Were found prostrated on that howling night ;
 Therefore the Goblin found some work to do,
 Which he performed with sturdy mind and might.
 His single arm into a dozen grew,
 As, 'midst the sickness, he alone kept bright—
 Assisting, cheering, fetching, carrying through
 His hundred patients. 'Twas a touching sight
 When morning broke, and the last sickling slept,
 To note that Goblin still his vigil kept.

The seventh day had come, replete with rest,
 And opportunities for sacred thought
 To whosoever cared to make the quest
 In that Old Volume, whence the Master taught ;
 Or in the later Testament, addressed
 To all humanity, once dearly bought
 And paid on Calvary's accursed crest.
 A calm and lovely Sabbath morning, fraught
 With gladsome tidings to those lately ill,
 From Him who said—"Peace! Winds and waves be still!"

How exquisite this Sabbath morning felt,
 How clear the sky, how translucent the waves,
 As if inviting Goblin, who now knelt
 Beside the taffrail, to their coral caves.
 The peaks of Corsica began to melt
 Into the ether all creation laves ;
 Sardinia seemed a long, wild, rugged belt
 Of mountains towering o'er volcanic graves,
 Whose extinct craters long had ceased to pour
 A fiery flood along that classic shore.

In the present instance the storm occurred during daylight, which robbed it of most of its terrors ; it was of short duration, so that no one got into a state of abject

misery; and although we had no good Samaritan on board in the shape of a "Goblin," we had an amiable Scotch lady of position, upon whom the elements took no effect, and an equally amiable young steward and stewardess, all of whom attended to and assisted us poor squeamish mortals in our extremity. The result was that, as the winds and waves gradually subsided into their normal condition towards the afternoon faces began to brighten, writing-desks or portfolios to appear, diaries to be made use of; and although the dinner-table was to some extent shunned, a kind of Lenten, surreptitious sustenance of biscuit in fragments, and cheese in amorphous scraps, was furtively absorbed at intervals during the remainder of the evening.

After another day's sailing the good ship at four o'clock on the following morning slipped into the Grand Harbour at Malta and anchored (Fig. 80). Although dusk and somewhat cold, our pencils were immediately at work; indeed some of us had been sketching previously, so that pictures of the two outlying islands, Goza and Comino, had been obtained. The former corresponds with the ancient Gaulus, covers an area of twenty square miles, sustains a population of 17,624 persons, and owns a fairly productive coral fishery on the north-west shore. It is separated from Malta by a channel two and a half miles wide, and although entirely surrounded by perpendicular cliffs, is defended by a work in Miggiaro Bay called Fort Chambray, besides having redoubts and towers at intervals all round its twenty-four miles of circumference. The other island, Comino, is much smaller, having a coast-line of only six and a half miles. It lies in the channel between Goza and Malta, is almost wholly cultivated, has a farmhouse, owns a chapel, and possesses several wells. This islet, together with Goza and Malta, form the Maltese group, embracing an area altogether of one hundred and fifteen square miles.

Having already alluded to the sights of Malta in Chapter II., it is unnecessary to recapitulate, more particularly as the stoppage on the present occasion, being comparatively

short, was devoted to making a few sketches. It may not be out of place, however, to supply one or two historical

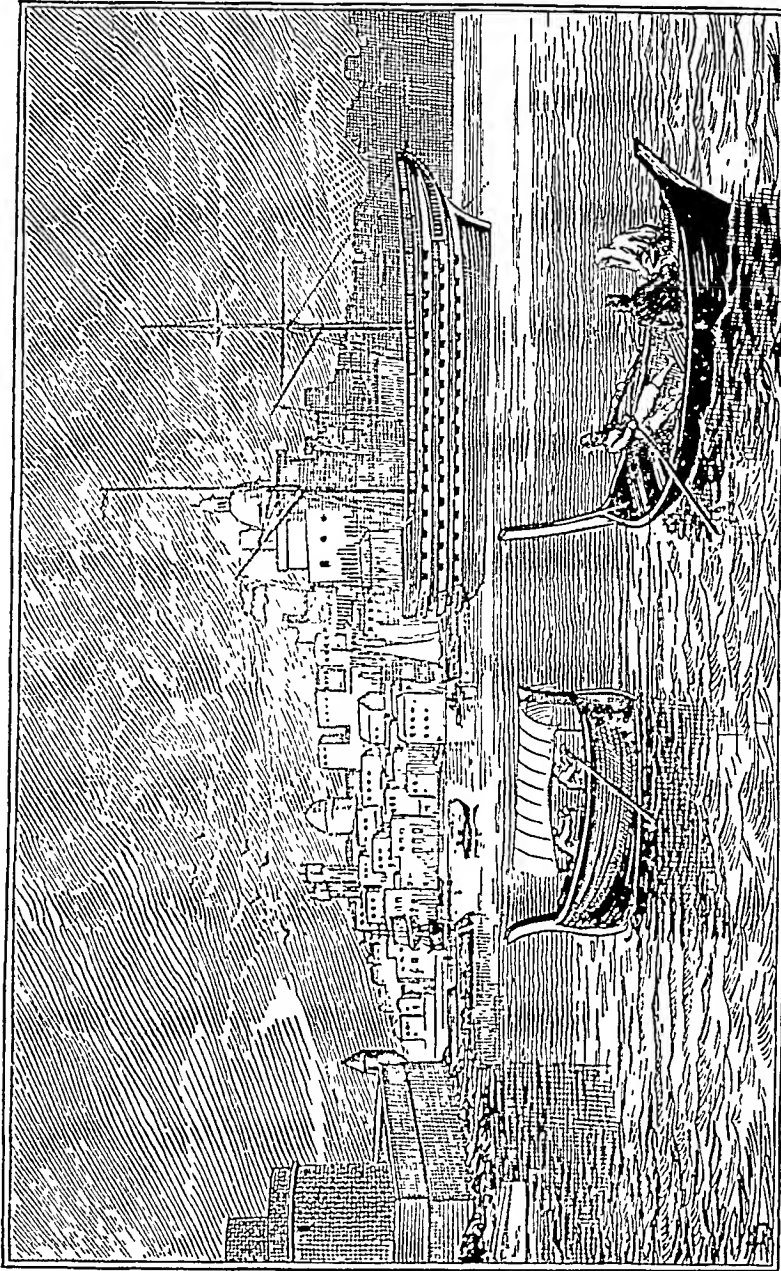


FIG. 80.—PART OF THE GRAND HARBOUR, MALTA, FORT ST. ELMO AND FLAGSHIP.

omissions from that chapter. History informs us that the three islands forming the Maltese group were wrested from

the Carthaginians by the Romans during the first Punic war. When the Roman Empire declined, it became a possession of the Goths, and afterwards was seized by the Saracens. From 1190 to 1525 the island remained an appendage of the kingdom of Sicily, when the Emperor Charles V. granted it to the Knights of St. John of Jerusalem, by whom it was held for more than two hundred years. On the 12th July, 1798, Malta capitulated to Napoleon Bonaparte; on the 5th September, 1800, it was handed over to Britain, and was finally annexed to the Crown by the Treaty of Paris in 1814.

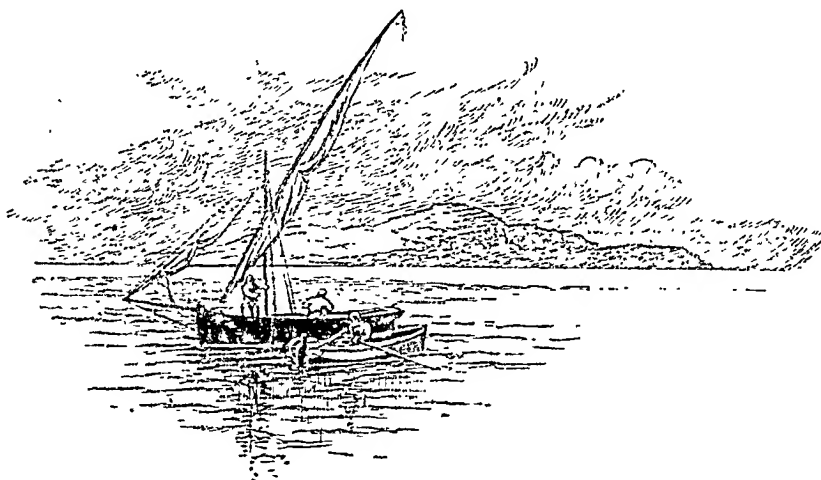


FIG. 81.—CAPE BON, 1290 FEET. EASTERN EXTREMITY OF THE GULF OF TUNIS.

There being considerable uncertainty regarding our time of departure, only one passenger went on shore in the boat which brought off the letters. These and newspapers, always welcome after an absence from one's native land, occupied very pleasantly the little time there was to spare, so that, after embarking some four fresh travellers, the ship steamed away again on her voyage exactly at eleven.

The view of the lovely island of Pantellaria (Fig. 3), obtained on the outward voyage, had been so gratifying that I, in common with the other passengers, began speculating on the probability of obtaining another glimpse; but

unfortunately it was passed at midnight, when all, except the officers on duty and watch, were asleep. Yet the disappointment was in some measure atoned for the following morning—that is, the second after leaving Valetta—by a fairly close and unobstructed view of the bold, dark, grim-looking headland, Cape Bon (Fig. 81) forming the eastern extremity of the Gulf of Tunis. About one mile behind the cape the land rises to the height of 1290 feet, and is surmounted by the ruins of an old tower.

The cape itself is such a conspicuous object that mariners assert that in clear weather they can recognise it when fifty miles at sea. On a shoulder of the ridge, about three and a half miles south-south-east of the headland, is a fort situated 835 feet above the water, which is also a good landmark.

Considering the degree of interest which attaches to these shores of the Mediterranean on account of their ancient history, it is surprising that more opportunities of visiting the kingdom of Tunis are not available to the student, the antiquary, and the artist. The steamers of the Cunard and other companies are constantly passing and repassing within fifty miles of the ruins of one of the most important cities of antiquity, and yet not one passenger perhaps in a thousand sees the spot, even through his telescope, upon which the few remains of Carthage still stand. It is not that the glory of this little African kingdom has wholly departed since the shadow of France fell over it. True, the population of its modern capital, Tunis, is only about one-fourth of that of its ancient metropolis, Carthage, three miles distant; but its bazaars are still well supplied with merchandise, its manufacturers constantly produce shawls, tapestries, mantles, and coloured cloths; besides, leather, soap, wax, and oil, coral, gold-dust, ivory, fish, cattle, fruit, and grain are largely exported.

Shortly after passing Cape Bon, the steamer sailed within a short distance of the curious volcanic group of islands named Zembra and Zembretta, occupying the eastern side

of the entrance to the Gulf of Tunis, over which the brilliant orange and crimson rays of the rising sun were beginning to tinge the sky with their splendour. The gulf is forty-five miles broad at its mouth, and at its other extremity, near Cape Ferro, lies another little archipelago of still more rugged isles, the Galitas, (depicted from another point of view during the outward voyage in Fig. 2). Mount Guardia is the highest peak in Galita, rising to the height of 1240 feet, while Sugarloaf, to the south-east, measures 1115 feet. At the north-east are Gallo, the outermost and largest, about a mile distant; Pollastro is in the centre, and is the smallest; and Gallina, the inner isle, is half a mile distant. To the south-west of these rocks lie, at the distance of one mile and a half another tiny group consisting of Galitona and Aguglia; the latter is the larger, but only projects above the sea 410 feet. With the exception of Galita, these isles are wholly barren and uninhabited, and it maintains only one Arab family.

But although unsuited at present for the support of human beings, the seas around the Zembreas and Galitas teem with wealth in the form of coral and sponge fisheries. The former valuable product is taken at a distance of two to ten miles from the coast, and in depths of twenty to forty fathoms; while sponges are collected from rocks in the shallower water near and among the islands. Italians living on the coasts of Tunis and Algeria are the principal coral divers, whose recognised season is from March to October; although those domiciled near the fisheries prosecute their calling, whenever the weather permits, throughout the year. The sponge-collecting season is from December to February, and the hunters comprise Greeks, Italians, and Arabs, the first named being the most expert divers.

In an earlier page of this work a scene of cruelty was described as having occurred at Syra, the victim being an octopus. Among the islands just alluded to large numbers of the Octopodia family are also fished and cured for the

Greek market, where the repulsive-looking meat is regularly sold for human consumption. In groping at the bottom among the clefts in the rocks for these hideous monsters, there is little doubt that accidents sometimes happen to the divers ; and it may have been from some of their exaggerated stories, born of terror and hairbreadth escape, that Victor Hugo got his original idea for a thrilling scene in his ' *Toilers of the Sea* ' of 1870.*

Between those two groups of volcanic islands vessels bound for Tunis pass to the head of the gulf, a distance of thirty miles, beyond which lies a shallow lagoon with the town planted conspicuously on its western side. Like most Eastern walled cities it is dirty, partly in consequence of its streets being narrow and unpaved. Nevertheless, it contains several magnificent buildings, such as the citadel, commenced by Charles V. and completed by Don John of Austria ; the mosque of Jussuf, elaborately pillared with marble ; and the palace of the Bey, glittering with barbaric splendour of

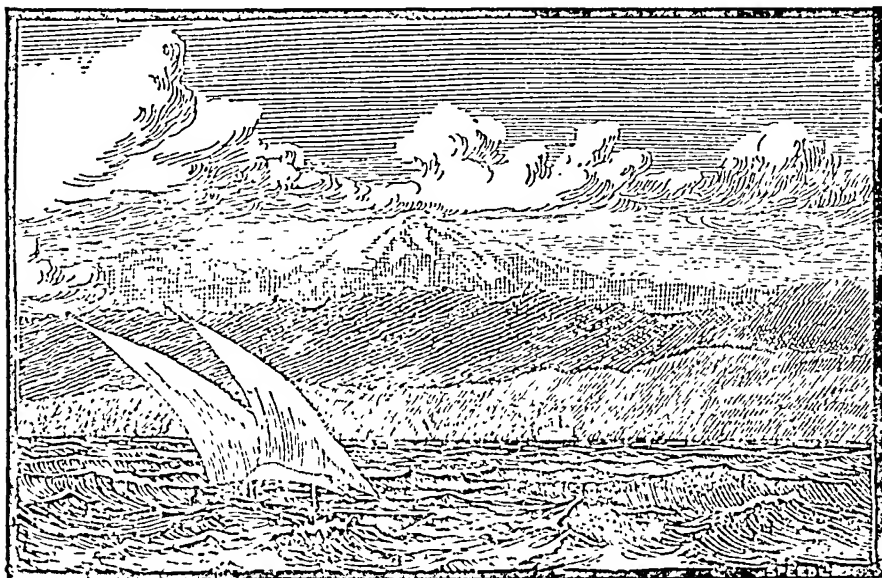
* " Gilliatt had thrust his arm deep into an opening of the rock, the monster had snapped at it. It held him fast as the spider holds the fly. He was in the water up to his belt ; his naked feet clutching the slippery stones at the bottom ; his right arm bound and rendered powerless by the flat coils of the long tentacles of the creature, and his body almost hidden under the folds and cross-folds of the horrible bandage. Of the eight arms of the devil-fish, three adhered to the rock, while five encircled Gilliatt . . . Two hundred and fifty suckers were upon him, tormenting him with agony and loathing. He was grasped by gigantic hands, the fingers of which were each nearly a yard long, and furnished inside with living blisters eating into his flesh . . . His left hand only was free . . . Gilliatt grasped his knife ; the sucking increased. He looked at the monster which seemed to look at him. Suddenly it loosened from the rock its sixth antenna, and darting at him, seized him by the left arm, and advanced its head with a violent movement . . . But Gilliatt was watchful . . . He plunged the blade into the fat slimy substance, and by a rapid movement describing a circle round its two eyes wrenched the head off . . . The struggle was ended. The folds relaxed. The monster dropped away. The four hundred suckers, deprived of their sustaining power, dropped at once from the man and the rock. The mass sank to the bottom of the water. Breathless with the struggle, Gilliatt could perceive upon the stones at his feet two shapeless, slimy heaps . . . The monster was dead."

carmine, azure, and gold, and musical with the sound of falling water from its many marble fountains.

But it is to the ruins of Carthage, three miles distant, that the student will probably turn, in preference to lingering among the Tunisian columns and marble arcades. According to legend, this ancient city was founded by Dido, a Phœnician queen, daughter of Belus King of Tyre. Her husband having been murdered by her father's successor Pygmalion, her own brother, the queen, along with a number of Tyrians, fled to sea, and founded a colony on the African coast upon land purchased from the natives. It was at first named Byrsa, from the Greek word meaning a hide, on account of the land having been measured by means of a skin cut into thongs. So much for the legend; but it appears that scarcely anything truthful is known of Carthage until it had become one of the greatest commercial cities of ancient times, when it had a population of 700,000 during the first Punic war. For 737 years the city and republic lasted, but during the third Punic struggle it was totally destroyed, one hundred and forty-seven years before Christ, by Scipio Africanus, a Roman general. It was this famous soldier who was afterwards seen weeping amidst the ruins, his orders having been to burn the city and to raze the walls, and he wept at the harsh duty, as he feared that some day his beloved Rome would meet with a similar fate.

It is one of the pleasures of sailing in the western part of the Mediterranean, particularly when beyond longitude 5° east, that the view ceases to be confined to one side. If the steamer has to touch at Gibraltar, as was the case on the occasion under review, she gradually edges away from the coast of Algeria, seemingly towards the Balearic Isles, sailing over the deepest part of this most interesting of all inland seas, which, at forty miles from Minorca, is given in official books as being 1678 fathoms, or nearly two miles. The next prize spot for profound depth is at the western contraction between Capes de Gata and Tresforças. It is generally the fourth day after leaving Malta that the

traveller again enjoys a glimpse of the coast of Spain at the former cape, which forms the eastern extremity of Almeria Bay. It is a rugged headland, bearing on its summit a tower named La Teste, and to the southward, about a mile, the castle of San Francisco de Paula is seen. Almeria is the chief town of a province of the same name, situated at the mouth of the little river Almeria. The town has good defences, possesses many ecclesiastical buildings, and in the days of the Moors was considered, next to Granada, the most important and wealthiest in Spain. It was then the



Belerma. Malahacen 11,830 feet. Sabinal lighthouse $4\frac{1}{2}$ miles off.
FIG. 82.—SOUTH COAST OF SPAIN. Almeria Bay, W.

principal port connected with the Italian and Oriental traffic; yet it was scarcely to its credit that it was feared by the traders of other nations as being quite as noxious a nest of pirates as the Algerians of Oran on the opposite side of the sea. Since those stirring days it has dwindled, and at present does comparatively little manufacturing, but its population of 20,000 still pursues a fair trade in the export of wine, lead, cochineal, and red silk. Almeria Bay extends for twenty-two miles westwards from Cape de Gata, but it is only eight miles in depth at the point where the town is

situated. This is rather an advantage to the traveller with an artistic eye, as he is thereby afforded most gratifying pictures of that grand, rugged coast, dominated by the magnificent, snow-topped Sierra Nevadas. Completing the run across the bay, his attention is arrested by three objects on shore: the towering Malahacen; the prettily-situated little glittering town of Belerma, nestling at the base of an intermediate range; and Sabinal lighthouse, forming the western limit of the great inlet (Fig. 82). After a time the Roqueta mountains on one side, and gathering vapours on the other, gradually shut out bit by bit the Nevadas, until only a distant view of the mighty culminating peak is obtained. This splendid range skirts the southern coast of Spain at a distance from the sea of thirty miles, terminating in the sierras of Algeciras, from which rise some of the highest peaks in the country. Most of these are covered with perpetual snow, and are said to be visible in clear weather from the opposite coast of Africa. Of all the summits of the Sierra Nevada those of the Malahacen, 11,830 feet, and Veleta, three miles westwards, 11,550 feet above the sea and about twenty miles inland, are the chief. At the foot of the Roquetas, alluded to above, about two and a half miles from Elena Point, stands the castle and little town of the same name; it is unimportant, and possesses a population of only 2300.

Still skirting the Spanish coast, the steamer passed the little towns of Adra, Motril, and Torrox, but at too great a distance, and difficult, on account of the waning light, to grasp pictorially their features. Even Malaga, some seventy miles north-east of Gibraltar, although twinkling with lights, could only just be seen. This prettily-situated town, of more than 113,000 inhabitants, seems to be carrying away the palm from any in France or Italy as a winter resort for invalids. It is said, indeed, that the word "winter," as understood under our British skies and under the perforating keenness of our searching winds, has no meaning there. It is so sheltered on every side by the high mountains, except

towards the balmy south, the climate is so dry and the sunshine so continual, that it looks like a gift from beneficent Nature freely offered to her poor consumptive children, wherein to recruit and pick up their shattered constitutions. With the exception of some handsome Moorish ruins, there are alleged to be no attractions for the antiquarian, whatever riches of outline and colour there may be for the artist; but this assertion should hardly be accepted literally of a town founded by the Phœnicians, which has been a focus of busy commercial life and trade for over three thousand years. In our days Malaga is best known commercially for its large export of sweet wines, obtained from the luscious Muscatel grape; its raisins, almonds, figs, and oil. Of these products the annual value sent to Great Britain and America exceeds one million sterling, and if its good people would confine their trading efforts to such legitimate enterprise they would deserve greater commendation; but, unfortunately, the traces of the old roving Phœnician blood are still uneradicated. Its people carry on an extensive smuggling traffic with Gibraltar, Marseilles, and other places, so that many a daring midnight scrimmage may yet occur between the Pillars of Hercules, of which the world is never any the wiser, and many a deed of heroism, and otherwise performed in the darkness, which would furnish British writers of "impossible kinds of stories" with thrilling pabulum for years to come.

The remainder of this charming run along the rugged Spanish coast was performed at a reduced rate of speed, and in the blackest gloom, as, Gibraltar being first of all a fortress, and only secondarily a commercial rendezvous, it was necessary to reach it not much sooner than the hour when admittance could be obtained. Accordingly, after a weary night—rendered doubly so by the slow, deliberate thud, thud, thud, of the lazy screw—like the wearied tramp of a sleet-buffed policeman about to go off duty on a December morning, the ship rounded the glowing lighthouse on Europa Point at half-past four, and ere other five

minutes had passed, every sketcher on board was on the quarter-deck with paper, pencils, and colours, working

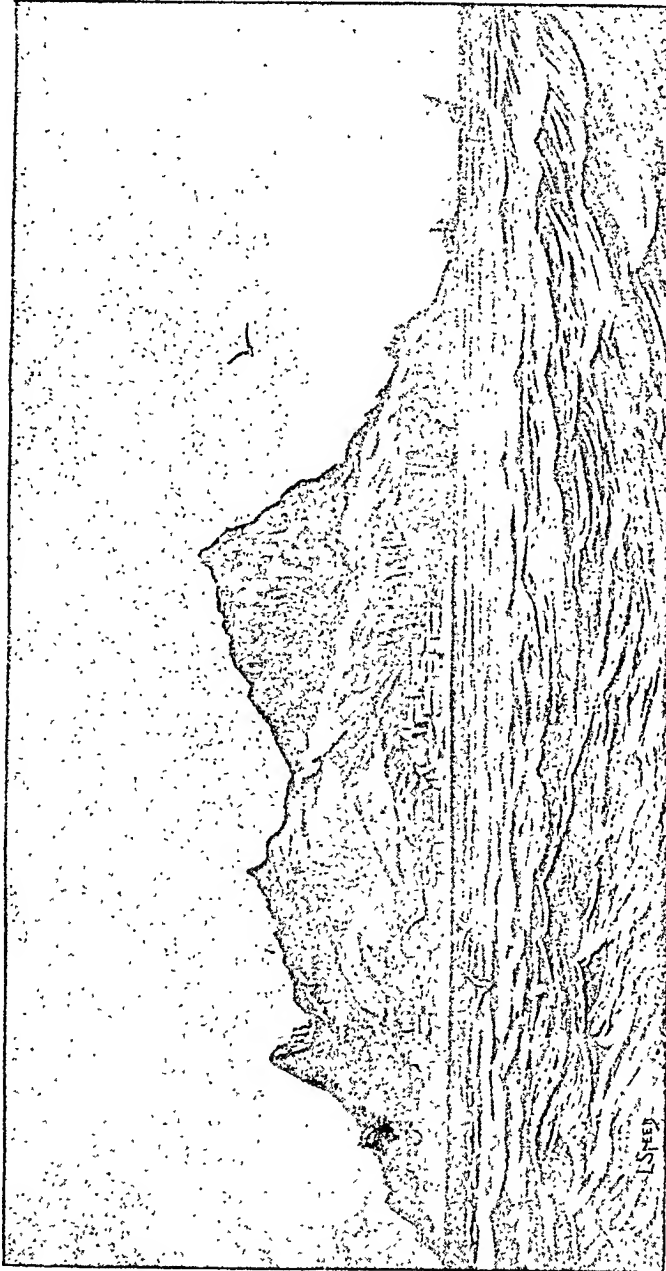


FIG. 83.—GIBRALTAR FROM THE BAY.

as if between life and death, and a fear lest the vast rock-stronghold might sink into the sea before it could be

depicted (Fig. 83). Slowly our steamer sailed into the gulf, meandering among numerous others already made fast alongside their coaling-hulks, and passing many more of both the commercial and fighting services at anchor off the town between the sites of the two one-hundred-ton guns. At length, at a quarter to five, we may be said to have arrived, as the vessel was also secured fore and aft to an ancient specimen of marine architecture; and immediately, amidst a gale of wind, the transfer to the steamer's bunkers of about one hundred tons of fuel commenced. There being no cargo either to discharge or load, and only a few passengers to embark, who speedily arrived on board, the steamer's stay was of short duration. Consequently, only one or two of our fellow-voyagers undertook the risk of going on shore to see old friends. Fortunately, the wind was unaccompanied by rain, so that those among us who remained on board, in order to make a few sketches, were, with the exception of a little annoyance from the coal-dust, not materially inconvenienced.

Gibraltar is the Mons Calpe of the Phœnicians and Romans, although its earliest title seems to have been "Alube," which the Greeks modified into "Calpe"; it is the Gibel Tarik of the Arabs, and the Monte de Gibraltar of the Spaniards. The rock rises abruptly, like a wall almost, at the termination of what is known as the "Neutral Ground," to the height of 1395 feet above the surface of the Mediterranean; it extends for two and a quarter miles south, and is hardly anywhere three quarters of a mile in breadth. This curious rocky mass consists of grey marble in its primary state of formation, seemingly deposited in layers from twenty to forty feet thick. From the sea it is barren-looking, but a nearer examination reveals many grassy hollows, and even small wooded glens, where asparagus, cacti, aloes, palmitas, capers, and other shrubs grow freely; while its living creatures include Barbary apes, woodcocks, partridges, rabbits, and pigeons. Sporting being discouraged for military reasons, this happy family

lives from year to year almost unmolested, and helps in some degree to mitigate the stern solitude of the upper heights. On the African side of the strait is the rock and Spanish fortress of Ceuta, dominated by the tremendous precipices of Mons Abyla, or "Apes' Hill," forming, with the rock of Gibraltar, the two "Pillars of Hercules." To us, of the nineteenth century, it appears unaccountable that the splendid natural fortress of Gibraltar should, for many centuries, have been altogether neglected as a stronghold by Phœnician, Carthaginian, Roman, and Goth; and that it was the genius of the wild Moor which first converted it into a place of military occupation. This occurred during A.D. 711, when the Saracens fortified the rock as a base of operations, and as a coigne of vantage to future expeditions leaving the Barbary coast. It was from the name of the leader, Gebel-Tarif, on this occasion that the rock acquired its Arabian name, which simply means the hill of Tarif, of which Gibraltar is a corruption. A small portion of the original fort still remains. From A.D. 711 onwards to the present time, the advantages conferred by the possession of this fortified hill have appeared so obvious that it has never lacked a master, and has frequently been the scene of the fiercest and most prolonged struggles. For years it formed a perpetual bone of contention between Moor and Spaniard, sometimes held by Almoravide princes, next by native Arab kings. In 1309 it became Spanish through the fortune of war, was besieged ineffectually by Moors in 1315, and fell before the arms of Fez in 1333. Again, in 1436, Spain made an attack upon the fortress, but failed, until in 1462 a treacherous Moor gave that power possession. A long period of tranquillity ensued, during which additional fortifications were added, so that the military opinion of the seventeenth century pronounced it impregnable. However, in 1704 a combined British and Dutch force bombarded the stronghold, with the result that the Spanish governor capitulated; and since then it has remained continuously, but grudgingly, in British possession, as it

was subjected to attacks by Spain and France in 1705, 1720, and 1727. After each ordeal the mighty rock came out of the fight better prepared for the next, with the red flag of Britain still fluttering in the breeze; but the fortress had need of all its previous preparation, and its defenders all their courage and resolution, as in 1779 the great siege, which lasted three years seven months and twelve days, began. The fortress was attacked by land and sea by the combined forces of Spain and France, the first considerable operation occurring on the 12th January, 1780. In April, 1781, the allies opened fire with 114 pieces of artillery, including fifty large mortars; and the bombardment continued with little abatement until the 26th November, when, by a desperate British sally, some of the Spanish works were destroyed and their main dépôt of ammunition exploded. By this deed of daring about 135 guns were silenced for a time; but the respite to the brave garrison under General Eliott was only temporary. On the 8th September, 1782, the great effort of the siege was made by nine line-of-battle ships, fifteen gun and mortar boats, united to the fire of 170 cannon of the largest calibre on land. All this artillery opened on the fortress at once, the cannonade continuing for four days, when it was tremendously increased by the combined fleets, which now numbered forty-seven sail-of-the-line, and additional frigates and smaller vessels. On the 13th every gun on both sides was in operation, and red-hot shot from the fortress was pouring on the Spaniards and French like a shower of glowing rocks from an active volcano. It was some time ere the scorching missiles took effect, on account of the precautions adopted by the allies; but on the afternoon of the following day eight of the ten armoured battering-ships were on fire, and every one of them was destroyed. The carnage and deaths by drowning on the side of the enemy were estimated at 2000 men, while the garrison had only sixteen killed and sixty-eight wounded. In the midst of all this horror; a British soldier, Brigadier

Curtis, organised a band of his men, who sallied forth on a mission of mercy upon the wreck-strewn bay, and rescued numbers of the enemy who had been left by their terrified shipmates to perish. Since that crowning feat of British arms, the possession of Gibraltar has been undisputed. As might be expected, the fortress is guarded with sleepless watchfulness, its defences are continually being increased, and its immense stores of ammunition and food are never allowed to diminish, so that, with its large garrison of 6212 soldiers, its formidable batteries, its vast galleries of communication in the solid rock, one above another nearly to the summit, and the readiness with which the British Mediterranean fleet could always co-operate with its defenders in time of war, this mountain of grey primary marble may safely be considered the strongest fortress in the world.

After all the fighting, loss of life, and waste of resources there has been in connection with the struggle for the possession of Gibraltar during the past 1174 years, the question may well be asked, "Has the game been worth the candle?" The rock naturally belongs to Spain, and its occupancy by any other power is a constant menace to the peninsula. Not only so, but its traders, through their inveterate smuggling propensities, are a perpetual fountain of annoyance and heavy expense to the Spanish revenue department, and such shady transactions afford an ever ready excuse to both nations to let loose the dogs of war. Looked at with either the financial eye, or that of political economy, Gibraltar is as bad an investment for Britain as could well be conceived, as its income from customs, port and quarantine dues, land revenue, stamps, taxes, and licenses in 1883 amounted to only £48,335, whereas the expenditure during the same period was £52,681, exclusive of its enormous military cost paid out of the national purse, which may safely be reckoned as always more than £300,000 per annum in time of peace. The portions of its harbour which may, by a stretch of the imagination, be called

sheltered, are inadequate for the exigencies of a modern British fleet; the commercial anchorage is exposed to sudden and tempestuous winds, and therefore awkward for our enormous mercantile marine. As a military station for troops it is said to be detested by both officers and men, and the chief *raison d'être* for it still being held, that its guns command the entrance to the Mediterranean, a channel more than fifteen miles wide, may be relegated to the realms of silly fiction. The rock possesses neither spring nor rivulet, and its inhabitants are dependent on the clouds and on distillation for all the fresh water required. In a word, Gibraltar demands everything and yields nothing; its tropical glare during months at a time encourages habits of intemperance, and is fruitful of sunstroke, while to many of the teething infants of exotic parents its climate is fatal. As a signalling-station for passing ships it may have been at one time of some little importance during daylight in the absence of fog, and useful as a coaling-station when the bunkers of Mediterranean steamers were of very limited capacity in proportion to consumption of fuel. But for the former purpose, a rock, over a thousand feet high, bristling with guns and swarming with soldiers, is now scarcely necessary; while for coaling purposes Malta is in every way superior.

Shortly after nine o'clock the "Kedar" started on her homeward voyage amidst rain and squally weather, which promised badly for the newly-shipped passengers, and was not viewed with indifference by some of those who had already been ill.

CHAPTER XXX.

GIBRALTAR TO LIVERPOOL.

As the steamer gradually drew away from the anchorage the magnificent dimensions of the great rock-fortress became more and more pronounced, and those among the passengers who had been expatiating most freely upon the uselessness of such a marble incubus to Britain, now began to hesitate and to rearrange their thoughts upon the subject; then to modify their opinions, and to cast about in mutual conversation for some more feasible and less bitter solution of the difficulty than that so often suggested of voluntarily getting rid of the responsibility by handing, for a consideration, the stronghold over to Spain. One practical person, more familiar and sympathetic, perhaps, with quarrying operations and parochial business than with artistic, antiquarian, or military feelings, mildly suggested blowing up the whole affair with dynamite, and selling the wreck for metal to the road trustees of Andalusia. Here a lively Irish officer with a grievance—as what native of the Emerald Isle is without one—struck in. Instead of demolishing any part of the proud rock, he would rear it higher; and it was at this point his peculiar wrong was aired. It appears that a former governor of the fortress, O'Hara by name, erected a look-out tower on the summit of the hill, which was afterwards shattered by lightning. The ruin was never repaired, and now serves merely as a picturesque feature in the landscape.

“Had that noble and pathriotic Oirish souldier been English or Scotch, or even Welsh,” said the veteran sailor with

an enthusiasm which scorned all criticism, "his handiwork would have been respected and maintained, instead of being mocked at and obliterated ; and we should not to-day be weeping tears of indignation over an unforeseen calamity, which no one could help."

While we were slowly recovering from the effects of the cachinnation produced by the Irishman's appeal, another of our number, a man apparently with a commercially prophetic brain, thought that in the interests of the future the rock should be left standing a little longer, as it, and the other Pillar of Hercules on the opposite shore, might become valuable as the towers for a railway suspension-bridge across the strait, with a station at Morocco. In this manner, by means of these three suggestions, an epitome of the public opinion of the present time was unconsciously offered to view. Those who, like the extremists of England and Scotland, and the rebel-mongers of Ireland, would ruthlessly and immediately change, subvert, and destroy all revered institutions of the country, on account of some fancied short-coming in their working, or in the human machinery conducting them, might be compared to the flippant dynamitard ; those who, like our Conservatives, without reference to uselessness or unsuitability to the spirit and demands of the age, would not only perpetuate the mouldy abuses of their Tory ancestors, but would add to their most crooked features, are truly represented by the mourner over the O'Hara tower ; while the broad-minded, cosmopolitan, progressive, far-seeing Liberal party—ever ready to move onward and upward, but never to retrograde or to sink—seem fitly indicated by the bold engineer who would save the grand old classic rocks, and aim at connecting the Pillars of Hercules by means of a railway bridge, and so quickly illumine the "dark continent" with European civilisation.

Before the tourist has got too far away, he should note the prettily-situated little Spanish town of Algeciras in the province of Cadiz, nearly opposite Gibraltar, on the further side of the gulf. Beautifully and picturesquely planted on

and at the base of a range of low tree-covered hills, its multitude of glistening white houses set against a background of the most refreshing green, and towered over by a mass of rugged brown mountains, offer to the eye a most attractive picture. This little town of 11,000 people is the Al Jezarah of the Arabs, and is protected on its north side by the fort of Santiago, and some military works on the islet of Verde. Apart from its interesting position, which makes it, by means of its steam ferry, an accessible resort for all who can leave the rock during the intense summer heat, the town is notable as having been the first in Spain which succumbed, in the year 713, to the prowess of the Moors. These dusky warriors retained their capture for seven centuries, when, during 1344, it was taken, after a siege of twenty months, by Alfonso XI. of Castile. For some reason, not now clear, this military operation was considered the distinguishing siege of the age; and it created such intense anxiety throughout Europe and elsewhere, that crusaders from all quarters hastened to take part in it—even Edward III. of England offered to go in person to the assistance of the Spanish monarch. In modern times the inhabitants of Algeciras enjoyed a treat, which to them must have been like the effects produced by the eating of “the little book” mentioned in the Apocalypse. On the 6th June, 1801, the British admiral Saumarez made an attack upon a combined French and Spanish fleet under Rear-admiral Luinois, between Algeciras and Tarifa, when the former was severely checked and almost defeated. A few days afterwards he renewed the engagement with a crippled force of less than half that of the enemy, and although he found himself helpless to prevent their retreat into Cadiz, he destroyed three of their ships, and deprived them of three thousand men in killed and prisoners. It was of this action that Lord Nelson declared that “a greater was never fought.”

Sentimental people, unacquainted with all the circumstances, are too much in the habit of expending all their pity on Spain, because Great Britain has hitherto steadily refused

to yield up to her the much-coveted rock and fortress of Gibraltar. Such persons, if they made a little inquiry, would find that Spain behaves on the opposite side of the strait in precisely a similar manner towards the kingdom of Morocco, in regard to the stronghold of Ceuta. This is a solitary fortress held by the Spaniards in the teeth of the Moors, as Gibraltar is by Great Britain against the wishes of Spain. For many years Ceuta has been undergoing a gradual military transformation, into what the Spaniards believe to be, a second Gibraltar for strength, and it is now thoroughly fortified, part of the works being erected on Mount Hacho, the ancient Abyla, or South Pillar of Hercules. Its history goes back as far as the year 534, when its name was Septa or Septum. On that date it was wrested from its Vandal masters by Justinian. In 618 the Western Goths pounced successfully upon it, who in turn had to yield it to the Moors. In 1415 Don Juan I. of Portugal seized Ceuta, but when the Portuguese detached themselves from Spain, in 1640, the fortress and town remained with the latter, and have been a Spanish possession ever since. Behind this fortress rises the Sierra Bullones, or Apes' Hill, a rugged, precipitous mountain mass, towering in a series of wild, sharp, inaccessible cliffs to the summit, which is 2808 feet above the sea, and is spoken of "as a wilderness of monkeys." It is said by vulgar tradition to be from this hill, by a submarine passage, that the curious pink tailless apes, occasionally seen among the upper crags of Gibraltar, find their way. Between Ceuta and Leona, the most northerly extremity of Africa, is Peregal Island, a small rocky mound of a mile in circuit and 244 feet high, also belonging to Spain, with a capacious cavern capable of sheltering two hundred soldiers. Still farther inland extend the magnificent mountains of Morocco, rising crag above crag, till lost to human vision. These are the outposts of the Moors, who, amidst ages of convulsion in every other country, are said to have retained their ancient habits and superstitions as inviolate as their lands.

There was at one time a rumour that Spain wished to offer Great Britain these African possessions of hers in exchange for Gibraltar. It has already been shown that, notwithstanding the advantages of position the great rock possesses, as a commercial speculation it is a decided failure. But if we reflect that Ceuta has scarcely any harbour at all, that the little it possesses is unsafe, that the town and fortress are to a large extent manned by convicts and State prisoners, that the garrison required, numbers more than five thousand soldiers, that the Moors have always been hostile and have

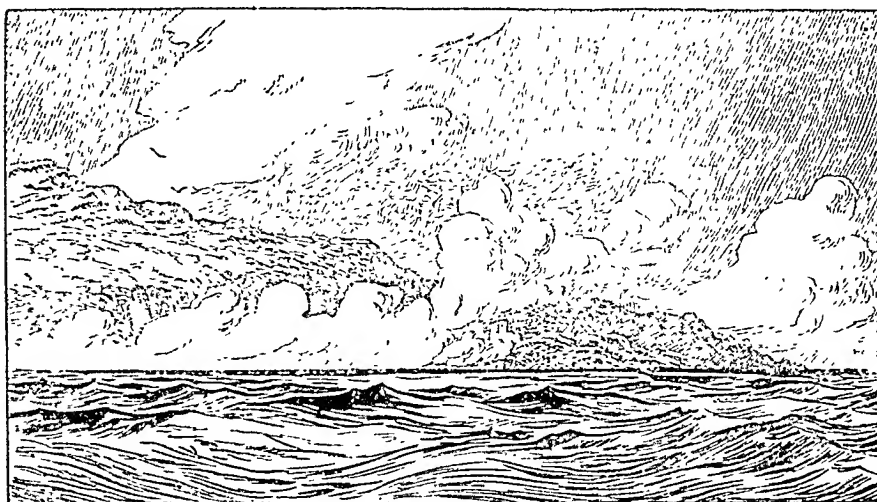


FIG. 84.—CAPE SPARTEL, NORTH-WEST POINT OF MOROCCO.

made many attempts to recover it, and that the population is mainly very poor—it will be evident that, should a British Government ever have an idea of making such an exchange, it would be amidst the derisive laughter of the civilised world.

As the entire length of the Straits of Gibraltar, from Cape Ceuta to Cape Spartel on the African coast, and from Europa Point, Gibraltar, to Cape Trafalgar on the coast of Spain, is only 36 miles, the distance is soon covered by a steamer; and the tourist from the east quickly reaches the north-west extremity of Morocco named Cape Spartel

(Fig. 84), the Baz-el-Skukkar of the Arabs, and immediately finds himself in the Atlantic Ocean, more or less near Cape Trafalgar.

What memories the very mention of this headland awaken! It is nothing to look at, only a low promontory situated nearly thirty miles west-north-west from Tarifa; but although insignificant in appearance, its name and the locality live imperishable in history, for was it not here that Nelson won his greatest naval victory, and yielded up his dauntless spirit? The action began on the 21st October, 1805, off this cape, where the combined French and Spanish fleets, consisting of thirty-three sail-of-the-line, five frigates, and two brigs, were attacked by a British squadron, mustering twenty-seven sail-of-the-line, four frigates and two small vessels. It was while bearing down upon the enemy that the celebrated signal was hoisted, "England expects every man to do his duty," in connection with which the following anecdote may not be much known:—When about to engage, Nelson said to Captain Blackwood of the "Victory," "We must give a fillip to the fleet. Suppose we say, Nelson expects every man to do his duty." At that moment, another officer standing near suggested the substitution of the word "England." "Certainly, certainly!" replied the admiral; and, thus modified and improved, the famous signal was accepted in a triplet of mighty cheers by the men of the entire fleet, as the ships sailed on in two lines to the fray. At the end of the struggle Cape Trafalgar was found to be distant south-east by east eight miles; nineteen of the enemy's ships had been captured or destroyed, but the hero of the fight was dead! His remains were afterwards interred in the Cathedral of St. Paul's, London, on the 9th January, 1806.

Scarcely has one's steamer got well away from this old scene of carnage, when the position of Cadiz is pointed out, an important commercial city of Andalusia, originally built by the Phœnicians 347 years before the first stone of Rome

was laid, or about the year 1100 before Christ. Cadiz is thus one of the most ancient towns in Europe, and not unfitted to represent a locality whence (the little town of Palos not far off) Colombus set sail for the discovery of the New World, and to which he returned when his grand mission was fulfilled. The Phœnicians must have possessed shrewd eyes when fixing upon sites for their settlements, as in almost every case their chosen spots excited the covetousness of each succeeding conqueror, and Cadiz has proved no exception. Following the Phœnicians came the robbers of Carthage, who enjoyed their capture for a time. Presently came the turn of the Romans, under whom Gades, as they renamed the town, acquired immense importance and wealth. Next came the Goths, followed by the Moors, and from the latter it was torn by the warriors of Spain in 1262. In 1596 it was pillaged and burned by Lord Essex, and unsuccessfully attacked by other English commanders in 1625 and in 1702. It was blockaded by the French in 1810, but was released in 1812 by the effect of Wellington's victories. Again, in 1823, it fell before the arms of France, and was held until 1828, when it returned to the care of its present owners.

The mere passer-by in a steamer has no opportunity of judging as to the superlative merits of its fair sex, so has to take Lord Byron's rhapsody on trust, when he says:—

“Oh never talk again to me
Of northern climes and British ladies,
It has not been your lot to see
Like me, the lovely girl of Cadiz.
Although her eye be not of blue,
Nor fair her locks, like English lasses,
How far its own expressive hue
The languid azure eye surpasses,”
etc., etc., etc.

But of the beauty of the town where they live, as seen from the water, there can be no doubt. Being built of a peculiarly white stone, it has a bright and charming appearance; and as the streets are said to be well-paved,

clean, well-lighted, and regular, although narrow, it deserves to be populated by the enchanting, dark-eyed beings of whom the poet so enthusiastically sings.

It is more than probable that the traveller who leaves Gibraltar during the morning will not see much more of this part of the coast of Spain, or of Portugal either; consequently, he will pass the bold headland called Cape St. Vincent during darkness. But should he be fortunate in securing daylight and fine weather, an inspection of this lone, romantic Portuguese promontory through his field-glass cannot but prove gratifying. It seems to stand out recklessly into the ocean, crowned by a fine lighthouse; and must prove of the utmost use to ships passing to or from the East, as at that south-western extremity of Portugal vessels change their course. The spot, history informs us, was held sacred by the Romans. On the summit of the rock was at one time a kind of a Druidical circle, in which, Strabo states, the Iberians believed there was a nightly assembly of the gods. Naval annals also assign to this part of the coast another great victory to British ships, gained by Sir John Jervis, afterwards Earl St. Vincent, over a squadron of Spain on the 14th February, 1797. During the partial obscurity of a fog, a Spanish fleet of twenty-five ships advanced upon a tempting prey of what they considered only nine British ships of war. As the mist cleared away, not nine, but fifteen were descried by the horrified Spaniards bearing down upon their loosely-arranged squadron; and the result was confusion, disaster, and defeat. On this occasion, Nelson, then holding the rank of commodore, with his men boarded the "San Nicholas" through the cabin windows, and captured the ship, on which the "San Josef," alongside, volleyed upon the British. Nothing daunted, Nelson boarded this fresh antagonist, and had the rare good fortune to receive the swords of the vanquished of both ships upon the deck of one of their own finest vessels.

Still sailing along the coast of Portugal, and obtaining

frequent pretty glimpses, now of bold rocky bluffs, anon of densely-forested slopes, the eye of the tourist is sure to be attracted, as in his outward voyage, by the noble embouchure of the Tagus (Fig. 1). This opening in the coast-line occurs in the province of Estremadura, some few miles to the south-east of the picturesquely-situated town of Cintra. Nothing can be seen of Lisbon, however, as that eminently pictorial city lies about eighteen miles inland. Although invisible from the sea, yet the imagination of the passing traveller will certainly form some kind of picture of a town which has suffered so often from earthquakes, and of an engineering triumph it contains which no volcanic convulsion has hitherto shaken. The great Alcántara aqueduct, finished in 1743, supplies all the public fountains and wells of Lisbon. It is eighteen miles in length, and at one place towers two hundred and sixty feet above a valley it crosses, and is rightly considered the largest specimen of stone-bridge building at present in existence. Yet, during the terrible earthquake of 1755, which destroyed a great part of the city, and slew twenty thousand of its inhabitants, the Alcántara aqueduct was undisturbed.

The small but charmingly-perched town of Cintra, lying fifteen miles west-north-west of Lisbon, is an object of interest, which the passenger, unless at night or during a fog, cannot miss. It was of this little earthly paradise that Lord Byron wrote to his mother in 1809 :—"To make amends for the filthiness of Lisbon, and its still filthier inhabitants, the village of Cintra, about fifteen miles from the capital, is, perhaps, in every respect the most delightful in Europe. It contains beauties of every description, natural and artificial: palaces and gardens rising in the midst of rocks, cataracts, and precipices; convents on stupendous heights; a distant view of the sea and the Tagus; and, besides (though that is a secondary consideration), is remarkable as the scene of Sir Hew Dalrymple's convention.* It unites in

* It appears from Napier's 'History of the Peninsular War,' that in this statement Lord Byron was mistaken, as "the armistice, the negotiations,

itself all the wildness of the western Highlands with the verdure of the South of France." It was of the same locality that in 'Childe Harold's Pilgrimage' he afterwards sang :—

"The horrid crags, by toppling convent crown'd,
The cork-trees hoar that clothe the shaggy steep,
The mountain-moss by scorching skies imbrown'd,
The sunken glen, whose sunless shrubs must weep,
The tender azure of the unruffled deep,
The orange tints that gild the greenest bough,
The torrents that from cliff to valley leap,
The vine on high, the willow branch below,
Mix'd in one mighty scene, with varied beauty glow."

Although the steamer passes the highly picturesque town of Oporto, which, coming next to Lisbon, is the most important in Portugal, the course is too far off for the slightest trace of its many towers and white-washed houses to be seen; consequently, there is little to note, until the high land near Vigo Bay, and its little archipelago of tiny islets, is reached.

Vigo is universally admitted to be one of the most beautifully-situated coast towns of Spain; and its balmy climate: its wealth of orchards, orange-groves, palms, and flowers: its ancient walls, gates, tortuous streets, and picturesquely-clad peasantry, point it out as an eminently congenial spot for the temporary residence of the invalid, scholar, or artist. This pretty town has been so frequently, yet ineffectually, attacked by our ancestors—in 1585 and 1589 by Drake; by the Duke of Ormond, Rooke, and Stanhope in 1702; and in 1719 by Lord Cobham—that one cannot help thinking that envy of its loveliness, quite as much as political considerations, led them to covet its possession. The bay sweeps inwards for twenty miles, with a width of five miles at its mouth, over which the little town, of about 8000 inhabitants, looks down from its

the convention itself, and the execution of its provisions were all commenced, conducted, and concluded at a distance of thirty miles from Cintra."

slopes over as charming a semi-Oriental scene as can be found anywhere.

Before the steamer reaches Cape Finisterre, the tourist is to some extent prepared for it by a sight of numerous mountain peaks in Galicia, particularly a commanding cone on the south-east, named Mount Tremuso. From this point Cape Finisterre (Fig. 85) is well in view, besides the whole of the grand panorama of rugged coast leading towards the headland. This cape, known to the ancients as the Promontorium Nerium, resembles nothing so exactly as an immense sleeping turtle reposing on the surface, with a massive lighthouse resting upon its head. The light is

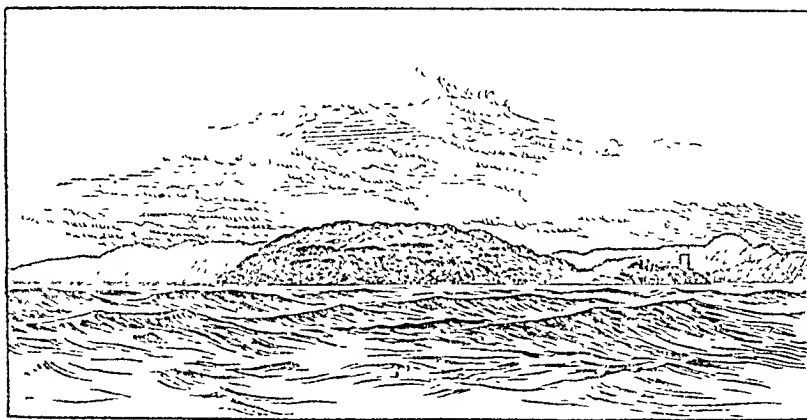


FIG. 86. —CAPE FINISTERRE.

said to be 463 feet above the sea; consequently, in foggy weather it can be of little use. Next comes Cape Torinana, with a background of imposing heights; then the Camarinas, a range of mountains as if of chalk, with large portions of the surface gone, and the pure white formation exposed; after which is Cape Villano (Fig. 86), the south-eastern extremity of the dreaded Bay of Biscay. Looking back from this point, the last glimpse of Cape Finisterre is obtained, which by this time has lost much of its turtle-like appearance, in consequence of the interposition of an island of small dimensions, but considerable height.

“ On, on the vessel flies, the land is gone,
And winds are rude, in Biscay’s sleepless bay,”
2 F 2

we passengers might have said with Byron during the Sabbath morning upon which the "Kedar" began her run of nearly four hundred miles across this vast gulf, whose normal state of turbulence has never been quite satisfactorily accounted for. It is represented by experts that the prevalent north-west wind drives before it huge volumes of water from the Atlantic, which are presently tossed back from the long regular line of coast towards the central portion. This process causes great commotion with high, short, and broken waves, accentuated by a stream named

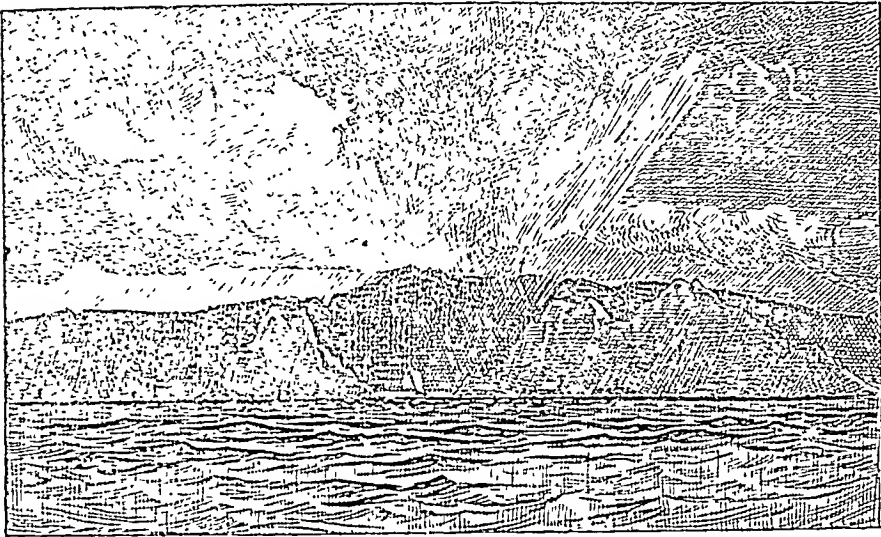


FIG. 86.—CAPE VILLANO, FOUR MILES DISTANT.

Rennel's Current, which, sweeping in from the ocean round the north of Spain, brushes along the west and north-west coasts of France, then passing over the British Channel, embraces the Scilly Isles, approaches the shores of Ireland, and after another twist joins what is called the North African Stream.

The turbulence, however, on the present occasion did not continue; and ere the bell tolled for morning service, the usually crested billows had subsided to a gentle ripple, and the sun went down in the evening in an indescribable glow of splendour, such as no painting could imitate. Whether

it was the beauty of the sky, the mildness of the evening, the winning words of the young clergyman who officiated, or the joyous sense of approaching home, it is impossible now to say; but the feelings of all the passengers seemed as it were simultaneously to seek a vent in song. Hymn-books of various denominations were furbished out of trunks; the hesitancy and bashfulness, characteristic of the travelling Briton on such occasions, were speedily overcome; one voice, and then another were raised, until not only those on the saloon-deck, but the officers not on duty, the engineers, and some of the crew swelled the chorus, and added to the grand volume of sound.

It is rarely, however, that unalloyed pleasure can be enjoyed in this world of change for any lengthened period without compensating pain; for with the shades of evening came masses of fleecy vapour, which, gradually acquiring density, entirely shut out the stars, and rendered rapid progress somewhat of a risk. As the night wore on, the bell was loudly tolled, and the steam-whistle blown at intervals; and although ten o'clock had been our usual hour for retiring, not an eye was closed, or a berth occupied at midnight. There is something so strangely exciting in finding one's self in the midst of a fog at sea in a frequented part of the ocean, that sleep is impossible. The bell and the whistle sound, and are answered by other bells and other whistles, sirens, and fog-horns, seemingly at enormous distances away, and yet, perhaps, within a quarter of a mile of the roused listener. For a moment, it may be, the mist clears away sufficiently to show the stem of a vast ocean steamer coming straight towards you, her red and green lights gleaming out of the fog, and her whistle shrieking like an angry, malevolent demon, hissing out his rage ere he hastens to your destruction. Or it may be there is a huge, four-masted immigrant ship, crossing the bow, and only seen in time to avert a terrible collision. The danger presents itself in different forms in varying circumstances; and it says much for the skill, the caution, and the splendid presence of mind characteristic of our merchant seamen,

that so few accidents on much-frequented water-routes occur.

Shortly after midnight, an order from the bridge, to increase the speed, gave confidence to the passengers that the sea ahead was comparatively clear, and in shorter time than it takes to tell it, the saloon and deck were deserted, and soon all were asleep.

Whether stormy or not, there is always a feeling of relief in the breast of the landsman when the Bay of Biscay has been safely crossed, and its north-eastern extremity, the French island of Ouessant (Ushant) gained. This, the largest of a little group of rocky islets, lies off the French Cape Finisterre (a Latin word, signifying "Land's End"), covers an area of seven square miles, and supports a fishing and cattle-rearing population of about 2300.

From Ushant the course is clear across the mouth of the English Channel to the Scilly Islands, lying some little distance off Land's End, and Lizard Point in Cornwall. With the exception of the Channel Islands, these are the most southern portions of the United Kingdom, and are noted for the large quantity of potatoes they produce, and send to the Bristol and London markets. There are some forty islets altogether in the group, within a circuit of about thirty miles. To the ancients they were known as *Cassiterides*, *Hesperides*, and *Siluræ Insulæ*, and were used in Roman times as shipping places for tin, whence it was conveyed by the Cornwall miners. Six only of the islands are at present inhabited, the chief being St. Mary's; while St. Agnes, three miles distant, is the most important to seamen, having a revolving light perched seventy-eight feet above the sea, visible at a distance of eighteen miles. It was upon one of the Scilly Islands that on the 22nd October, 1707, the distinguished British admiral, Sir Cloudesley Shovel, was wrecked. His ship, the "*Association*," and several others struck, and the crews all perished. The body of the admiral was afterwards recovered, and was buried in Westminster Abbey.

Should the tourist escape the fogs, which so often prevail near those islands, Land's End, the Cape Finisterre of England, may possibly be dimly seen, and his eyes and field-glass will find ample practice roaming over the wide expanse. The district is specially interesting to the geologist from the strong likelihood, existing in many minds, that the Scilly Islands and the termination of Cornwall were once, at no very remote period, united. Tradition, indeed, asserts that between Mounts Bay and the Scilly group, woods, meadows, arable land, and one hundred and forty parish churches have been swallowed up by the sea, so that disestablishment and disendowment on a scale of some magnitude in England is of older date than politicians imagine.

Turning from the south-east to the north-west, the eye will now rest upon Cape Clear, an elevated bluff rising more than 400 feet above the sea, and crowned by a lighthouse exhibiting an intermittent flash at an altitude of 455 feet. This is a well-known land-mark for vessels, and is the most southerly point of Ireland. In old ecclesiastical books this point is named "*Insula Sancta Clara*," and in ancient Irish manuscripts "*Inish Damhly*"; and doubtless in the rough old days of buccaneering this island, only three miles long, and one mile and a half wide, must have afforded a safe retreat to the O'Driscolls, who, in the security of their stronghold, are said to have been as hospitable as on the sea they were dangerous. Could these lively rovers have opened their eyes upon the scene of their many illegal marine operations, and seen some of the magnificent British war-ships encased in armour (Fig. 87), cruising this misty morning in St. George's Channel after their evolutions in Bantry Bay (so to speak, only round the corner), they would have stared with wonder, particularly at one stately monster with four masts gliding along with the air of a monarch of both winds and waves.

The "*Kedar*" was now merrily screwing her way across the mouth of the Bristol Channel, or estuary of the river

Severn ; an inlet worth noting, as it is the largest in Britain, having a coast-line of 220 miles. As this vast gulf, of eighty miles in length and forty-eight miles at its greatest breadth, receives the fluid contributions of ten considerable rivers, besides many smaller streams, and as the tide rises with great rapidity to heights between forty and seventy feet, the opposing forces produce the curious, but sometimes awkward, phenomenon called the "bore," a wall of water from six to nine feet high, which travels to considerable distances with more or less speed, and severely tests the toughness of the cables of ships moored in the line of its progress. The power of a "bore" will be better understood when it is

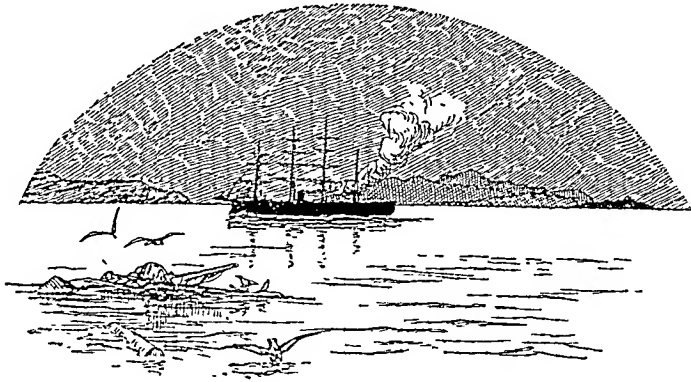


FIG. 87.—IRISH COAST AND CAPE CLEAR.

mentioned that the one which regularly occurs in the Hoogly branch of the Ganges, travels seventy miles in four hours.

The Bristol Channel having been crossed, the deeply-indented coast of Pembrokeshire comes into view with its magnificent Milford Haven, a harbour allowed to be unequalled by any other in the world. This is an irregular, twisted estuary, which, with a depth of fifteen to nineteen fathoms and breadth of one to two miles, penetrates the land as far as Langwin, a distance of seventeen miles, and is capable of sheltering the entire British fleet. True, this fine harbour of refuge is somewhat out of the track of the com-

merce of the Thames, and, as a naval dépôt and ship-building port, may probably be more open to attack than such a station as Sheerness. Whatever may have been the reasons which actuated our authorities to remove much of the naval work from the locality, such was done in 1814, much to the detriment of the town of Pembroke. If liability to attack was the only reason for the change, surely something might have been done for the efficient protection of a refuge which, in the hands of any other nation of Europe, would long ago have been rendered impregnable.

St. David's Head, a high rugged promontory, the west-most point in Wales, will now have been reached. It is opposite to and distant from a corresponding projection on the Wexford coast named Carnsore, about fifty miles. The town of St. Davids, two miles inland, in the Middle Ages, was large and important, being the goal of continual pilgrimages to the shrine of the saint. This holy individual seems to have lived and been the bishop of Caerleon, as well as the Metropolitan of the Welsh church, in the fifth century. To him has been attributed the origination of the leek as a Welsh symbol; but other historians repudiate this assertion, and say that it arose from the custom, still to some extent maintained, of the neighbours of a small farmer assembling on a special day to plough his land, and each fetching with him a quota of leeks for the broth-pot. Although the once flourishing town has now diminished to a small village, it still offers some great attractions to the pilgrim with a portfolio or note-book in its fine cathedral, remains of ecclesiastical residences, and other objects of interest.

The channel now bulges out into such breadth that little, even in the finest weather, can be seen from the deck of an incoming steamer, until Cardigan Bay has been left behind, when the island of Anglesea, the smaller isle off its western side, and the stack rocks become visible. A little further on, the intelligent tourist, with a taste for engineering works of some magnitude, will doubtless keep

peering in a north-easterly direction up the Menai Strait, which separates Anglesea from the mainland of Carnarvon, in hopes of catching a glimpse of Stephenson's magnificent Britannia tubular bridge. This daring series of four great spans over the strait, at the height of 102 feet above high-water mark, is still worthy of attention on account of its vast dimensions, and as being the first effort of the kind ever attempted. It was commenced in the spring of 1846 for the directors of the Chester and Holyhead Railway, and in less than five years was triumphantly completed, 12,000 tons of iron, fastened together by 2,000,000 of rivets, having been used.

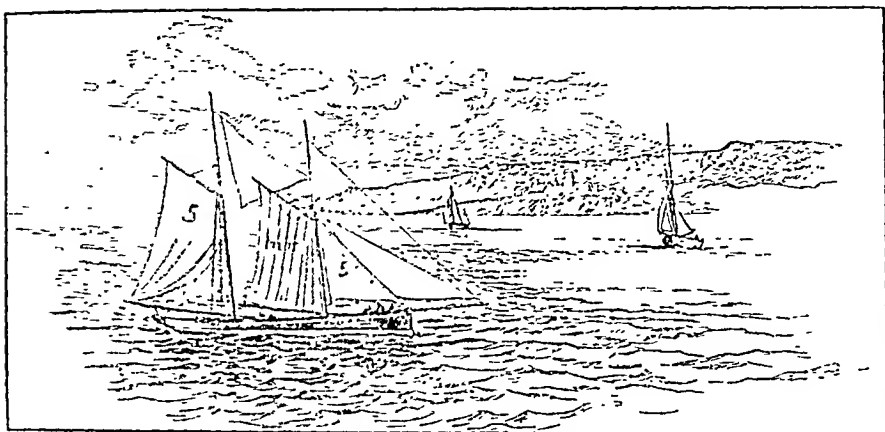


FIG. 88.—THE PILOT BOAT. POINT LYNUS, ANGLESEA.

Anglesea, spelt by the Saxons "Angle's Ey," or the Englishman's island, measures about twenty miles one way by seventeen miles the other, and is associated in modern minds chiefly with the principal seat of ancient Druidical superstition. Being sandy, peaty, and almost devoid of forests, in addition to being comparatively flat, it presents no happy hunting-ground for the artist; and beyond some cromlechs, and the remains of a Roman camp, offers but small inducement to the antiquary. Holyhead Island lies to the west of Anglesea; but the name "island" has some years ago ceased to be applicable, since it is connected by a causeway and embankments, arched in the centre (over which the

Holyhead road, and the Chester and Holyhead Railway pass) with the former. The North and South Stack isles are on the north-west coast—the latter joined to Holyhead by means of a suspension bridge; the former detached, and carrying a light visible at twenty miles' distance.

Once fairly round these crags, and sailing along the north side of Anglesea, the voyage is practically over, as a pilot and customs' officers come on board at Point Lynus (Fig. 88); the captain is relieved of the chief responsibility; the passengers go through the process of having their effects searched by the guardians of the revenue; in a few hours the ship is safely moored in one of the docks at Liverpool; and, after kindly adieux all round, the crew while "*compagnons de voyage*" separate to return to their own homes.

EPILOGUE.

THE persevering reader, who, in his comfortable fireside easy-chair, has perused the foregoing pages, will have, in imagination, been conveyed over a stretch of fully seven thousand five hundred miles. He has been introduced in an unpretending manner to much that is deeply interesting in regions rendered famous by both Scriptural and classical authors. Some characteristic features of parts of Europe, Mediterranean Africa, and Asia Minor have been sketched, with the pen and pencil of an amateur it may be, yet with the resolve to

“Nothing extenuate,
Nor set down aught in malice.”

An attempt has been made to emancipate the narrative from the old worn-out rut of the mere diary, and equally to eschew the twaddle and gossip of ship-board and the caravansary.

Among the objects which actuated the writer's journey was the one alluded to towards the end of the Prologue, namely, that of being enabled to judge personally, whether or not the long-continued and much-dreaded silkworm maladies had yet been brought under human control by one of the most successful silk-farmers of Asia Minor. This inquiry was triumphantly answered in the affirmative. Another object was the acquisition of additional information of a practical nature regarding the newest and best methods of conducting silk-farming, from the planting of the mulberry to the harvesting of the silk crop; a quest which may also be said to have met with success. The season proved entirely propitious; the people—natives and foreigners of all ranks and conditions—were kindly, hospitable, and well-

disposed to assist in every way; the Government officials showed friendliness and appreciation of the writer's objects; nothing was wanting to render the mission both instructive and agreeable.

Under such favourable circumstances it is to be hoped that something has been chronicled likely to prove useful to future sericulturists in New Zealand, other British possessions, and elsewhere, connected with an ancient and once lucrative industry, moribund for more than quarter of a century through the effects of refractory disease, yet, under the untiring patience and fostering care of a distinguished Englishman of Smyrna, now rapidly recovering its former vigour there.

The feeling of uncertainty connected with the future of silk-farming having thus to some extent been alleviated, and the missing link for New Zealand, so to speak, supplied, there seems no further reason, after the Colonial Government shall have once more given the matter some additional consideration, why the combined industries of tea- and silk-production in the north of Auckland, and elsewhere in the islands, should not be commenced and prosecuted upon a scale of magnitude commensurate with their importance and national value.

A little may also have been accomplished by way of showing that the Turks of the present epoch are no longer proud of being reckoned the type of old-world inertia, nor are content to remain stationary, while the other nations move ever onwards; and that the Greeks of Asia Minor not only aim at, but are rapidly realising, their long-delayed dream of emulating the educational, and in some sense, the literary and artistic achievements of their renowned ancestry of the Morea.

For the sake of future travellers, requiring a change of scene and climate for a few months, and desirous of combining a little mild and innocent excitement with a maximum of information and enjoyment, it may be added in conclusion, that a health-holiday formed a prominent aim of the

passengers who accompanied the writer from Liverpool *via* Smyrna to Constantinople, and back. They left home jaded, worn with work or society, dull-eyed, leaden-footed, and spiritless; they returned refreshed, renewed in every fibre, lively, brisk, and mercurial, ready to confront and tackle any duty or hardship the approaching winter might bring. *Finis coronat opus.*

WILLIAM COCHRAN.

OVERDALE, DUNBLANE,
PERTSHIRE, 20th June, 1887.

INDEX.

A.

- ABDUL AZIZ, 214, 304
 Abdul Mijid, 344
 Abercrombie's tomb, Malta, 30
 Abyla, south Pillar of Hercules, 428
 Abyssal depth at Karavi, 39
 Accidental *flacherie*, 192
 Achmet Kiazim Effendi, 167
 Acropolis, Nymphio, 78; Philadelphia, 383; Sardin, 379
 Activity of male silk moths, 151
 Adra, 417
 Adrianople, 292, 321, 322, 323
 Ariatic, 406
 Advantages of pierced papers, 92
 Advice to hard workers, 1
 Ægean Sea, 210, 324, 326
 ——— Islands, 344, 398-402
 Æsculapius, 371
 Æsop, 379
 African coast, 10, 14
 Africanus and Asiaticus, 374
 Agamemnon's Baths (Smyrna,) 44, 331
 Ages and moults of silkworms, 116-125
 Agha, Ali, and brigands, 348
 Agriculture around Smyrna, 209
 Agricultural machinery, 240, 385
 Agridagh volcano, 210, 302
 Aguglia (Galata Islands), 17, 413
 Aidin, 133, 210, 213, 216, 221, 230, 238, 327, 330, 344, 357
 Ailanthus-fed silkworms, 64
 Airiness and purity in sericulture, 87
 Ak-Hissar (Thyatira), 373
 Aladin, Sultan, 55, 383
 Alaschoir, 53, 85, 220, 221, 231, 240, 328
 Alexander the Great, 53
 ———, Prince, 310, 324
 Alexandra Dock, Liverpool, 2
 Alexandria, 369
 Alexandroff, Dr., 396
 ———, Constantine, 396
 Albanian costume, 352
 Album of brigands, 356
 Alcaeus (Sappho's lover), 325
 Alcantara aqueduct, 433
 Aleppo, 312
 Alfonso XI., 427
 Alfred, Prince, at Malta, 26
 Algerian heights, 16; Pirates, 416
 Algeciras, 417, 426, 427
 Ali Agha, 348
 Allowances of silkworm eggs to educators, 51
 Almeria mountains, etc., 14, 415, 416
 Almond cultivation, 211
 Almoravide princes, 421
 Alteras, Salomon, 343
 Alyattis of Lydia, 53, 378
 Ambassadorial and official residences, 291, 298, 311
 American missionary at Athens, 137
 Amphitheatre of Pergamos, 372
 Amusing court scenes, 227, 228
 Andalusia, 430
 Anadolu Hissar, 308, 309, 311
 Anatola (Bosphorus), 300, 312
 Anatolian Peninsula, 336
 Anchorage in Bosphorus, best, 312
 Ancient frescoes, Malta, 26
 Andrea, Captain (a brigand), 318, 349, 356
 Andronicus the younger, 77
 Andros island, 398, 399
 Anecdotes of brigands, 346-354
 Angelo, Fort (Malta), 22, 30
 ——— Cape (Malta), 37
 Anglesea Island, 442
 Animated spectres, 383
 Anna, Mount St., 401
 Anniversary, Greek independence, 132
 Antioch in Caria, 239
 Antigones, 53
 Antiochus the Great, 255, 374, 380, 390
 Antiquity of carpet weaving, 98
 Antony and Cleopatra, 372
 Apelles, birthplace of, 401

Apes' Hill (Ceuta), 428
 Aphorisms from the Koran, 167
 Apocalyptic churches, 328, 358
 Apostrophe to a steward, 7
 Appliances for the nursery, 88-97
 Arapene silkworms, 261
 Archimedes, 200
 Archipelago, 37-43, 270, 319, 320, 322
 Ardyes of Lydia, 378
 Arles, *magnanerie* at, 186
 Armenian gentleman and brigand, 347
 ——— patriarch, 351
 Armonia newspaper, 396
 Armour-clad ships, Turkish, 316
 Arrangement for heating the *magnanerie*, 87
 ——— for microscopic examination, 202
 ——— of brushwood for the silkworm, 127
 Artaxerxes, 237
 Artillery guarding the Dardanelles, 272
 ——— guarding Smyrna, 43
 Arundell, Rev. V. S., 239, 242, 248, 250
 Asia Minor, extent of, 210
 Asopus, river, 390
 Aspect of Smyrna streets, 367
 Atche and Nazli, 239
 Athenians, 220, 400
 Athens, 325; Parthenon at, 360; Gulf of, 402
 Atmospheric effects, 13, 15, 270, 436
 Attacus *cynthia*, 64
 Attalus Philadelphus, 371, 382
 Augustine, St., 16
 Aurelius, Marcus, 365, 366
 Austrian railways, 322
 Available labour, Aidin, 216
 Average planting distance, mulberries, 65
 Ayasouluk, 233, 330
 Azizieh and Balachik, 236

B.

BABA CAPE (Tread), 271
 Bacchus, 338, 398
 Baccylides, birthplace of, 401
 Backbone of the Levant, 133
 Bacon, Lord Keeper, 222
 Backsheesh, 367
 Badly-shaped cocoons rejected for re-production, 148
 Bad roads of Asia Minor, 85
 Bairaktar, Mustapha, 341
 Bagdad grain, 153; moths, 153, 266; worms, 259

Bajazet, Sultan, 383
 Balearic Islands, 415
 Balkan Peninsula, 323
 Ballads and rhymes, 4, 7, 13, 23, 55, 57, 169, 301, 311, 403, 407, 434, 435, 444
 Bantry Bay, 439
 Barbarossa, Emperor, 256, 391
 Barley fields, 236, 255
 Basilica and bridges of Pergamos, 371, 372
 Basilius, Archbishop of Smyrna, 135, 396
 Bas-relief of Rameses II., 79, 84
 Basting a young smoker, 334
 Baths, Agamemnon's, 44, 331; Diana's, 53, 331, 337
 Bay of Biscay, 8, 10, 435; Bay and Gulf of Smyrna, 43, 172, 215, 270, 326, 331
 Bazaars, Constantinople, 287; Smyrna, 328; Syra, 40
 Begging impostors, 216
 Begonia *chica*, 64
 Beico's district, brigands in, 351
 Belcafe, military station, 77
 Belerma town, 416, 417
 Belgrade, 313, 322
 Beliefs about silkworms, 186, 187
 Belo Puolo Island, 39, 402
 Belus, King of Tyre, 415
 Benefactors of Greek institutions, 139, 140
 Berlingas islands, 8
 Best food for silkworms, 69
 Best way of heating a nursery, 87
 Bigotry at Malta, 29
 Bird, Miss, on silk, 114; Birds, oak-tree-planters, 54
 Birth of Little Earthquake, 397
 Bismark, Prince, 211
 Black Death, The, 222
 ——— mailing, 354
 ——— Osmons, 55, 58, 219, 220
 ——— Sea, 300, 301, 303, 305, 312
 ——— sheep, Laodicean, 390
 Blackler, Mr. & Mrs. (Smyrna), 396
 Blackwood, Captain, 430
 Blighting effect of Mohammedism, 20
 Boat, story of a rickety, 225
 Bon, Cape, 411, 412
 Bon, M. and Min, 396
 Bookbinding at Polytechnic, Smyrna, 171
 Boreas, rude 4; and Neptune, 406
 Bore, Lake, 323, 324
 Bore of the Severn and Hoagly, 440
 Bosphorus, the, 279, 288-291, 300, 315
 Botrytis, *Bassiana*, 197

Boudjah, 331, 332
 Bournabat, sericulture at, 48, 73, 76.
 86, 257-268
 — near site of ancient Smyrna,
 52
 — near Lake Tantzir, 335
 Brazier for heating rooms, 59, 244
 Breeds of silkworms, Mr. Griffith's, 259
 Brigade, fire, Smyrna, 225
 Brigandage in Asia Minor, 219, 221,
 310-357
 Bristol Channel, 439, 440
 Britannia tubular bridge, 112
 Bronze twisted column from Ephesus,
 286
 Broussa, 292, 296,
 Brushwood for silkworms, 265
 Bride of Abydos, Byron's, 55
 Buckukgee (a brigand), 350
 Buffaloes, 232
 Bulair military lines, 274
 Bulgaria, 323, Bulgarians, 246
 Bullones (Apes' Hill), 428
 Byron on Bay Oglou, 55; Cadiz girl,
 431; Cintra, 434
 — Euxine breakers, 301; La
 Valette, 23
 Byrsa (Carthage), 415
 Byzantine ruins, 77, 82, 233, 332, 336

C.

Caenn, adoration of the, 321
 Cabinet-making, Polytechnic, Smyrna,
 170
 Cadiz, 426, 430, 431
 Cadmus, Mount, 213, 240, 245, 390;
 River, 390
 Carleon, bishop of, 441
 Cæsar, Tiberius, 380
Calcivulto, silkworm mildew, 197
 Camarinas mountains, 435
 Camels, 59, 368
 Canary seed, 319
 Candia island (Crete), 35, 36, 406
 Cannon and powder works (Makri
 Kiva), 319
 Capture of Captain Andrea, 348; of
 Smyrna merchants by brigands, 353
 Caranousd, girl stealing from, 351
 Cardigan Bay, 441
 Cair, 239
 Carisman Oglou, 55, 58, 219, 220
 Carnsore, 441
 Carpets, Turkey, 85, 98-106
 —, India and Tunis, 98
 —, European, 99
 —, Story of a prayer carpet, 104
 Carthage, 17, 374, 412, 415, 431

Caspian Sea, 303
 Cassiterides (Scilly Isles), 438
 Catterdjee Janni (a brigand), 336, 348
 Cattle tax, 229
 Causes of brigandage, 341
 — silkworm diseases, 179-186,
 192-198
 Caution to tourists, 58
 Caves in Cerigo island (porphyry), 35
 Cayens river, 330
 Cayster river, 233, 360
 Cæcæne of Phrygia, 239
 Central Asia, the mulberry in, 68
 Cephalonia island, 216; steamer, 3
 Cereal growing, 100, 211, 236, 238, 239
 Cerberus, 318
 Cerigo island (Cythra), 34, 35
 Cesarea, 318
 Cession of Bessarabia by the Turks,
 312
 Cetius, river, 369
 Ceuta fortress, 428
 Chamberlain and Wolff, 311
 Chandler on the Niebe, 57
 Charles V. of Spain, 414
 Chemeh village, 365
 Cherry orchards, 77, 211
 Chester and Holyhead Railway, 442
 Chestnut forests, 400
 Chief of the Cyclades (Syr), 42
 Chieftie Kiosk village, 239
 Chief litterateur of Turkey (Kemal
 Bey), 214
 Chighily village, 54
 Childe Hatold, 434
 Chillé (a brigand district), 351
 China, an old silk producer, 66
 Chinese sericultural precautions, 186
 — silkworm management, 113
 Chobanissa village, 60, 219, 220
 Cholera in Smyrna, 136
 Christacki, Alexander (Smyrna), 140
 396
 — Elia (Constantinople), 369
 Church of St. John (Malta), 27
 Chrysalis, a dissected, 195
 —, ferments from stomach of a,
 191
 Chrysopolis (Skutari), 301
 Cimmerians, 220
 Cintra, 9, 433
 Circassian brigand, a, 351
 Citta Vecchia (Malta), 28
 Clarke, Mr., Smyrna, 396
 Clear, Cape, 439
 Clubs of Smyrna, 47
 Cobham, Lord, 434
 Cochran, family reminiscences, 141-
 143
 Cockerell, Mr., 250

- Cocoons, colour, when known, 121
 ———, varied by feeding, 64
 ———, for reproduction, 147, 149
 ———, gathering, 129
 ———, steamer for, 94; steaming, 266
 ———, weights of, compared, 108, 267
 Cogamus river, 381
 Coins of Turkey, 218
 College, Roberts', on Bosphorus, 308
 Columna, Cape, 401
 Colonnade at Hierapolis, 251
 Colophon, an Ionian city, 232
 Colosse, 389, 391
 Colour of silkworm eggs, 153
 Colours used in Turkey carpets, 102
 Columbus, 431
 Commencement of sericulture in France, 175
 Commercial, and reproductive grain, 185, 186
 Confederated brigands, 346, 353
 Consignment of *graine*, 155
 Constantinople, 280-293
 Consular buildings, 297, 298
 Contagious *flacherie*, 190
 Coral fisheries, 413
 Cordelio, 53, 331
 Corpuses under the microscope, 180, 181, 204
 ———, method of counting, 205
 Corpusculous malady, 179-188
 ——— worm, segment of, 185
 Cossyra (Pantellaria island), 18, 19
 Cost of Turkish Hospital, 168
 Coupling silkworm moths, 151
 Courtesy of Turkish authorities, 47
 Crater-lake (Pantellaria island), 19
 Crete island, 36, 399, 406
 Crimean war, 341
 Cræsus, King, 53, 378, 380
 Crusaders, 309
 Cuddies an' grapes, 19
 Culmination of the silk trade, 177
 Cultivation of mulberries in China, 66
 ——— at Bournabat, 69
 Cunard Mediterranean steamers, 1, 2, 4, 11, 269, 319, 397
 Cuttings, management of mulberry, 69
 Cyaxeres of Medea, 378
 Cybele, temple of the, 379
 Cyclades islands, 398
 Cyclopean remains (Bournabat), 52
 Czar of Russia, 310
- D
- DALRYMPLE, Sir H. W., 433
 Dancing dervishes, 329, 365
 Danger of *pebrine*, 185
 Dangers of a fog, 34, 437
 Danger to one's ears, 58
 Danube river, 321
 Dardanelles, 271-274, 301, 319
 Darius, 220, 309, 380
 David's Head, St., 441
 Deaconesses' Institution (Smyrna), 297, 339
 Dead Sea, 302, 303
 Debernardi on sericulture, 113
 Decline and revival of sericulture at Smyrna, 258
 Decrease in quantity of silk harvests, 177
 Dédé Agatch (Roumelia), 320-324
 Deepest part of the Mediterranean, 415
 De Gata, Cape, 415, 416
 Delaying incubation by use of ice, 66
 Delphic Oracle, 380
 Delphi, Mount (Negropont island), 399
 Department of State, Washington, 107
 Deserter male moths, 152
 Destroying life in the cocoon, 266
 Detail of Mr. Griffith's sericultural system, 115-131
 Diakos, Pope, 133
 Diana's Bath, 53, 331, 337
 ——— Temple at Ephesus, 233, 360
 Diaries, Keeping, 11, 21, 46, 318, 404
 Dice, invention of, at Sardis, 379
 Dido, Queen, 415
 Difference between male and female cocoons, 147
 Differences in sericultural management reconciled, 114
 Difficulties of different silk seasons, 264
 Dignitaries of the Greek Church (Smyrna), 135
 Dimensions of silkworm frames and stands, 92
 Dinner-table scene, 11
 Diospolis (Laodicea), 255, 390
 Discovery of white marble at Ephesus, 361
 Diseased and dead cocoons, 130
 Diseases of silkworms, 174, 186, 187
 ——— in Italy and France, 65
 Disestablishment at the Scilly Isles, 439
 Dissecting a chrysalis, 195
 Distances apart for mulberry trees, 65, 67
 Distribution of silkworm eggs, 49, 258
 Divine service on board ship, 19, 319, 436
 Djumovassi and Develikeuy, 231

Dock scenes, 2, 443
 Doctor incendiary, a, 224
 Dolma Bagtche (Bosphorus), 304, 305
 Domestic fowls fed with male silkworm
 moths, 152
 Don John of Austria, 414
 Donkeys, 244, 263, 367
 Doro Channel, 399, 400
 Double cocoons, inferior, 118
 Dragoman, the, 222
 Dragut Point, Malta, 22
 Drake, Admiral, 434
 Dramatic story of two missionaries, 144
 Drebbel, Cornelius, 200
 Driscolls, the O', 439
 Drôme silkworms, 112
 Dry mulberry leaves for feeding, 110
 Ducas, John (Greek General), 383
 Dumas, M., 178
 Dust-infecting experiment, 183
 —, mulberry leaf, 73
 Dyeing at Thyatira, 374
 ——— yarn for Turkey carpets, 102

E.

EARLY RISING, 10
 Ears, danger of losing one's, 58
 Earthquake, Little, 397
 Earthquakes, Anatolian Peninsula,
 365; Ancient, 255, 382; Colossae,
 389; Constantinople, 284; Hiera-
 polis, 389; Rhios Island, 325; Lao-
 dicea, 389; Lisbon, 433; Sardis and
 other cities, 380; Scriptural, 302;
 Smyrna, 365
 Easter in the Greek Church, 137
 Eastern Question, a solution of the,
 303
 Eating powers of the silkworm, 110-
 113, 126
 Economic (Governor) of the Greek Hos-
 pital, Smyrna, 136
 Educating the silkworm, 50, 87, 107-
 131, 257-268; general instructions,
 108-110; detailed instructions, 115-
 131; for *graine* only, 263; for silk
 alone, 259; rooms, 264
 Educational grants, 297
 Edward III., 427
 Edwards, Mr. (Constantinople), 396
 Eels, mudlarks groping for, 53
 Effects of the silkworm maladies, 257
 — of sunrise at Malta, 2
 Egg-and-dart ornament at Hierapolis,
 250
 Eggs (silkworm), consignment of, 155;
 extraordinary hunt for, 177; pre-
 serving, 154; removing, 153

Elements of brigandage, 341, 315
 Elena Point (Spain), 417
 Elias, Mount (Morea), 32, 35
 Eliot, General, 422
 Elmo, Fort St. (Malta), 22
 Emir, Aalein (village), 51
 Emperor Napoleon and Pasteur, 257
 ——— Hoang-Ti (China), 66
 Encampment of camels, 59, 60
Eucelule women and sericulture, 186
 Endurance of silkworm education, 111,
 114, 259
 English Channel, 438
 Ensilage of mulberry leaves, 73
 Entrance to the Black Sea, 312
 ——— Dardanelles, 271
 Ephesus, 348
 Ephesus, as a cemetery, 362; black art
 at, 363; decline and fall of, 363;
 how to reach the ruins, 330; legend
 of discovery of white marble at, 361;
 obliteration of the harbour of, 364;
 once a haunt of brigands, 344; the
 ruins of, 362; some account of, 359;
 the temple of Diana, 360

Epilogue, 444
 Epitome of modern Greek history, 134
 Equalising silkworms artificially, 117
 Eruption, Mount (Ardia), 18
 Esaki-Hissar (Laodicea), 254, 390
 Essex, Lord, 431
 Estremadura, 433
 Etna, Mount, 20
 Etudes sur la Maladie des Vers à
 Soie-Pasteur, 86
 Euboea (Negropont island), 398, 399
 Eudon river, 239
 Eumenes II. of Pergamos, 369, 370
 Euphrates and Bagdad silkworms, 259
 Europa Point (Gibraltar), 418
 Euxine (Black Sea), 300, 301, 303, 365
 Evangelus, 361
 Examining cocoons for sex, 149
 ——— microscopically, 185, 201
 Execution by a Black Osman, 56
 Experiments with infection, 182
 Exploding a powder magazine, 398
 Extent of Asia Minor, 210
 Eyob, 291, 316, 317

F.

FACETIOUS BRIGANDS, 350
 Fahrenheit's thermometer, 115
 Falconera island, 39
 Father of History, 378
 Features of Asia Minor, 210
 Feeding space required by silkworms,
 93, 264
 Feeling caused by a sirocco, 16

- Fellow-passengers, 3-13, 19, 21, 23, 30, 32, 46, 270, 280, 300, 308, 316, 318, 397, 402, 409, 424, 425, 443
 Female moths sedate and phlegmatic, 151
 Fenwick, Captain, 2
 Ferdinand, palace of King, 9
 Ferro, Cape, 17, 413
 Feverish localities, 54, 233, 321, 338
 Fez, kingdom of, 15
 Fig cultivation, 49, 211, 238
 Finisterre, Cape, 435, 439
 Fire-raisers (Smyrna), 222-229
 First bishop of Smyrna, 366
 ——— Episcopal church in Malta, 29
 ——— French mulberry tree, 175
 ——— issue of gold and silver coinage, 379
 ——— Greek President, 135
 ——— Parliament of Queen Elizabeth, 222
Flacherie, Mr. Griffitt's observations and experiments on, 87, 188-196
 ——— how to reduce the risk of catching, 162
 ——— microscopic and physiological revelations of, 188-196
 ——— moths most liable to catch, 148
 ——— Pasteur's observations and experiments on, 188, 192
 ——— tribute to Pasteur's investigations into, 86
 Floss-silk, 266
 Fog-horns, sirens, and steam-whistles, 3, 33, 437
 Fontrier, M., 231, 396
 Food devoured during an education, 126
 Foot-pads, 341
 Fortune on sericulture in China, 66
 Fountains, natural, 81, 215, 250, 337
 Four years' mulberry pruning, 71
 Frames and stands for sericulture, 92
 Francisco de Paula, San-, 416
 France, arms of, 431
 Frankish quarter, Constantinople, 291
 Fraudulent insurers in Smyrna, 222
 French cupidity in Malta, 27
 ——— precautions in *Magnaneries*, 186
 ——— silkworm management, 111
 ——— silk returns, 267
 Fumigation of nursery, 109
- G.
- Gades (Cadiz), 431
 Galata islands, 17, 413
 Gallesium mountains, 231
 Galata (Constantinople), 277, 279, 288, 291, 304, 317
 Galicia, 435
 Gallipoli, 274, 319
 Ganges, bore on the Hooghly and, 440
 Garden-party, a fatal, 312
 Gata, Cape, 15
 Gathering cocoons, 129; mulberry leaves, 67
 Gebel-Tarif, 421
 Gendarmerie, 343, 353
 General Osman Pasha, 354
 Genoese castles, 308-311, 331
 George, King of Greece, 132, 135
 Georgio island, St., 401, 402
 George's Channel, St., 439
 German competition in the East, 294
 German Emperor, 339
 Germans in Aidin, 238
 Gerusia of Sardis, 379
 Ghiaour-Keui or Hammedia, 54
 Gibraltar, Bay of, 419; cost of maintaining, 423; defences of, 423; description of, 420; dislike of soldiers to, 424; fauna and flora of, 420; great siege of, 421; history of, 421; Liverpool to, 1-12; Straits of, 11, 415, 417, 419, 429; suggestions concerning, 425; to Liverpool, 425; to Malta, 13
 Gilliat and the octopus, 414
 Gladstone, Mr., 11, 12, 141
 Gold and silver coinage, first issue of, 379
 Golden Horn (Constantinople), 278, 288, 303, 316
 Goths, 309, 428, 431
 Government bullied by Maltese priests, 29
 Government offices (Smyrna), 166
 Goza, Island, 21
 Grand Harbour (Malta), 22, 30, 409
 Grafted mulberries, 67
 Gradient, a steep, 236
 Grain distribution, 49, 51, 56, 60, 75, 77
 Great siege of Malta, 30
 Greece, mainland of, 400; Russia and, 323; Seven Wise Men of, 379
 Greek Archipelago, 12, 36, 39, 260, 317; appreciation of Mr. Gladstone, 141, 143; affliction for Rev. Mr. and Mrs. Hill of Athens, 137, 144, 146; and veneration for the memory of Lord Cochran, 141; brigands in Asia Minor, 344, 346; brazier for heating rooms, 50, 261; girl and

- brigands, 346; maiden of Seio, 144; holiday, 132; hospital and schools, 137-139; hospitality, 50; housewife, 78; improvement, to what owing, 133; institutions of Smyrna, 132; lady teachers all over Asia Minor, 146; landlady, *c.* 240; population of Asia Minor, 133; prelates at Smyrna, 135; interesting sericulturists, 49; sympathies estranged from Russia, 141; thirst for knowledge, 41
- Griffitt, John, of Bournabat, near Smyrna. Epitome of that gentleman's sericultural experience, 47-97; 107-131; 147-164; 174-208 and 257-268
- Bournabat silk harvest of 1885, 257-268
- Difficulties attacked and vanquished, 48
- Distribution of grains at Bournabat, 75; Chobanissa, 60; Hagelar, 49; Magnesia, 51; Nymphio, 77; general, 258
- Educating the silkworm, 107-131; general instructions, 109, 110; detailed instructions, 115-131; experiences of 1885, 257-268.
- Invigorating practice with silkworms, 161
- Mulberry cultivation, 62-74.
- Mysteries of reproduction, 147-164
- Nursery, the, and its appliances, 86-97
- Pasteur's Cellular system, 156-161
- Races of silkworms reared at Bournabat, 259
- Twelve rules for sericulturists, 162
- Use of the microscope in sericulture, 199-208
- Griffitt, W., on Onshak carpets, 101, 396
- Groping for eels, 53
- Gro-se, Mina (Deaconesses' Institution, Smyrna), 339
- Growing mulberries at Bournabat, 69
- Guardia, Mount (Galita Island-), a recent volcano, 17, 18
- Guebze district, brigands in, 351
- Guistuppi village, 45
- Gulf and Bay of Smyrna, 43, 172, 215, 270, 326, 331; of Tunis, 411
- Gyaros island (Jura), 400,
- Gygean Lake (Sardis), 377, 378; Gyges, 377, 378
- Gymnasium at Hierapolis, 251; Laodicea, 251
- Gypsies, encampment of Turkoman, 313
- II.
- Hacho, Mount, 428
- Hadji Mustafa Effendi, 395
- Hadji Nachid Pasha, 85, 172, 210, 214, 219, 242, 356, 395
- Hagelar village, 49
- Halka Bounar (Diana's Bath), 53, 215
- Hallam, Dr. Henry, 200
- Halys river, 378
- Hamilton, Lady Claud, 178, 189
- Hamilton, Sir W., 248, 251, 378
- Hammedia or Ghiaour—Keni, 54
- Hannibal, 374
- Harbour steamers, 331
- Hard workers, advice to, 1
- Harvey, Dr. W., 200
- Hassan Effendi, 52
- Haunts of brigands, 314-351
- Helen of Troy, 401
- Hellespont (Dardanelles), 271-274, 301, 319
- Henri Quatre, 175
- Hercules, pillars of, 11, 418, 421, 426, 428
- Heraclidae, 377
- Hereditary *flacherie*, 190; accidental, 192
- Hermit's hut, Malea, 37
- Hermus River, 51, 213, 219, 330, 377 381
- Herodotus, 377
- Hesperides (Scilly Isles), 438
- Hierapolis and Laodicea, 221, 230, 242, 330, 386-393
- Highly corpusculous grains, 180
- Hill, Rev. Mr. and Mrs., of Athens, 137, 144, 146
- Hindering incubation by use of ice, 66
- Hippocrates, 401
- Hippodrome (Constantinople), 281, 286, 343
- History of an incubation, 263
- History of some silkworms, 259
- Huang-Ti, Emperor (China), 66
- Homer, on the Niobe, 57; Homer's tomb, 53, 215
- Homeward bound, 395
- Hoo-Chow silk, 67
- Hoogly river, 440
- Horsunlec, 239
- Horozi Keni village, 55
- Hospital, Greek, 138
- , Turkish, 167-169
- Hospitality of Philadelphians, 384

Hot pool, Hierapolis, 250, 251, 388, 389
 Hours of feeding silkworms, 117
 Houses bought to be burned, 224
 How infection in silkworms is communicated, 182
 How to use the cocoon steamer, 95; incubator, 88; leaf cutter, 90, 262
 ——— pierced paper tray, 91; pruning knife, 71
 ——— discriminate between *pebrine* and scratches, 184
 Hugo, Victor, 414
 Human diseases & silkworms, 186, 187
 Hussein Hilmi Effendi, 212, 214, 356, 395
 Hutton, Mr. (Smyrna), 52, 396
 Hybrid silkworms, 261
 Hygrometer and thermometer, 89

I.

Ice used to hinder incubation, 66
 Ignatius to the Tralleans, epistle of, 238
 Iliad of Homer, where written, 215
 Imbros Island, 319
 Imperial Kiosk (Bosphorus), 307
 Impudent priests (Malta), 29
 Incendiary doctor, no, 224
 Incubation, premature, 78; retarded, 66; scientific, 109, 115
 Incubator, the, 88
 Indigenous yellow silk moth, 266
 Indigo colour of the Mediterranean, 22
 ——— given to silkworms, 61
 Industrial School (Smyrna), 169, 331
 Infecting healthy silkworms experimentally, 182, 191
 Instructions in sericulture, 47-97, 107-131; 147-164; 174-208; 257-268, viz.:—
 Ages of silkworms and management, 116-126
 Arranging brushwood for spinning, 127
 Cocoons strung for reproduction, 149
 Consignment of graine, precautions necessary in, 155
 Counting corpuscles, method of, 205
 Coupling silk-moths, 151
 Dissecting for inspection, 195
 Educating the silkworm, 107-131
 Examining microscopically, 179-198
 Experiments with disease, 182, 191

Flacherie, 86, 94, 107, 148, 161, 163, 176, 188-196
 Gathering the cocoon crop, 129
 Griffith's, Mr., Invigorating Practice, 161
 Incubation, accelerated, 156; hindered, 66; ordinary, 115, 263; premature, 78
 Inspecting for reproduction, 206
 Issue of the moths, 150
 Issue of the worms, 78, 109, 115, 161, 263
 Method of producing cellular graine, 158
 Mounting to spin, 126
Muscadine or *calcinetto* disease, 197
 Pasteur's cellular system, 156
Pebrine, 86, 94, 107, 151, 157, 161, 176-188, 203-208
 Preserving the eggs, 154
 Removing graine from cloths, 153
 Selecting cocoons for reproduction, 147
 Stringing do., 149
 Twelve rules for sericulturists, 162
 Intellectual recuperation of the Greeks, 133
 Ionia, 239; Ionian colonists, 364; confederacy, 365; Ionic Greeks, 400
 Ionian Islands, 12, 36, 216
 Irish coast, 439
 Irish grievance, 425
 Iron ore of Serpho Poulou, 39
 Irrigation in Ailin, means of, 215
 Isolation of mulberry plantations, 72
 Italian sericulture, 112, 267

J.

JACOB'S WELL (Boudjah), 332
 Janissaries, the, 286, 341-343
 Java, volcanic cones of, 302
 Jerusalem Chamber, the, 255
 Jews, references to, 333, 390
 John, St., church of, Malta, 27; Pergamos, 371
 ———, sepulchre of Ephesus, 359, 362.
 John, Don. of Austria, 414
 Jolly, Mr. & Mrs. (Constantinople), 396
 Jordan Valley, 302, 303
 Journal de Smyrne, 212
 Juan, Don, I. of Portugal, 428
 Judas trees, 336
 Julia Judkins, 403
 Junction of brigands' forces, 353
 Jupiter. thunderbolts of, 383
 Jura island, 400
 Justinian, 428

K.

- KADIKUEY, 288, 305, 316
 Kadri Bey, 395
 Kalamata, gulf of, 34
 Kalamos volcano, Melos, 38
 "Kali emara sas Keyren f—schuristo," 50
 Kalogrees (hybrid silkworms), 261
 Kara Bournou Peninsula, 43
 Kara Giorghis (peasant farmers), 219
 Karamán, General, 55, 56, 383
 Karatasch village, 45
 Karavi island, 39, 402
 Kedar s.s., 395, 435, 439
 Keen thirst for knowledge in Greeks, 41
 Keeping diaries, 11, 21, 46, 318, 401
 Kelchie Kaleh (Goat's Castle), 232
 Kemal Bey, Governor of Rhodes, 214, 356
 Keuylu (near Dédé Agatch), 324
 Keos island, 401; Khios island, 325, 397
 Khyvotos, M. Fokion Poletheros, 396
 Kiatib Oglu, 337
 Kiosk village, 238
 Knife for shredding mulberry leaves, 90, 262
 Kodus river, Smyrna, 43
 Konak, Smyrna, 166, 354
 Kondoleon, A. E., Smyrna, 139, 396
 Koniale town, 349
 Koukloudjah village, 211, 331, 335, 336
 Kovari, Mount, 399
 Krakator island, 302
 Kuyujuk village, 239
 Kuluk town, 353
 Kyriós, A., Bishop of Christopholeos, 135, 396
 Kythnos island, 400, 402

L.

- LABOUR, agricultural, 216
 Lacedaemonia, 36, 37, 403
 Laggard silkworms, 118, 129, 266
 Lake Bori, in Roumelia, 323
 ——— Gygean near Sardis, 377
 ——— Marble, of Hierapolis, 248, 251
 ——— Pegasacan, near Turbali, 232
 ——— Pantellaria, an old crater, 19
 ——— Tantalus, near Smyrna, 53, 54, 335
 Lakonia, Gulf of, 34
 Lands End, Cornwall, 438
 Land Tax in Asia Minor, 220
 ——— measure, Turkish, 218

- Laodicea, approach from Hierapolis, 254
 ———, aspect of at present, 255
 ———, discovery at, 392
 ———, destruction of, 391
 ———, historical facts concerning, 255, 390
 ———, references to, 221, 230, 330, 383, 388, 390-393
 Large-leaved mulberries, 67
 Larks, mud, groping for eels, 53
 Last glimpse of Smyrna, 397
 Leaf-cutter, and shredding mulberry leaves, 89, 90, 262
 ——— famines, mulberry, 73, 264
 Leander's Tower, Bosphorus, 301
 Leave Constantinople, 319
 ——— Roumelia, 325
 ——— Smyrna, 397
 Leaves of the wild mulberry, 68
 Leek, a Welsh symbol, 441
 Legends of Andros island, 398; the Archipelago, 325, 398, 400
 ——— the Bosphorus, 309, 314; Carthage, 415; Ephesus, 361
 ———, Kelchie Kaleh, 232; Macro Nici island, 400
 ——— an Octopus, 414; Pergamos, 369; Sardis, 378
 ——— Westminster, 311; Zea island, 401
 Leona, Africa, 428
 Leonidas and Thermopylae, 404
 "Les deux Frères" (Smyrna Barometer), 54
 Lessons taught by experiments on *pebrine*, 182-186

- flachrie*, 191-193
 Lethæus river, 237, 239
 Lettuce-fed silkworms, 64
 Levant, 1; inflammable houses, 223; steamers, 2; three scourges of, 222
 Library and museum of Greeks of Smyrna, 139
 Lidja of Balgora Ghikektiov, 45
 Lighthouses: Cape Clear, 439; Finisterre, 435; Lynus point, 442; Mersey, 3, 443; Sabinal, 416; Spartel, Tangier, Tarifa, and St. Vincent, 10
 Liqueurice, 211, 238
 Lisbon, 8, 433
 Literary activity, 11, 21, 46, 318, 404; History, Hallam's, 200
 Litter, careful removal of, 91
 "Little Earthquake" of Smyrna, 397
 Liverpool to Gibraltar, 1-12; Gibraltar to Liverpool, 425-443
 Lizard Point, Cornwall, 438
 Loading grain at Dédé Agatch, 321

Lombardy attacked by *pebrine*, 177
 'London Society,' quotation from, 186
 Looms for Turkey carpets, 102
 Loss to Turkey of Bessarabia, 342;
 Ionian Islands, Moldavia, Servia, and
 Wallachia, 343
 Louis XIV. and French sericulture,
 175
 Luinois, Rear-Admiral, 427
 Lyeurgus, 33, 404
 Lycus river, 239, 246, 390
 Lydia and Croesus, 53, 378; Lydus or
 Lud, 377; River Lydus, 373; of
 Thyatira, 374; Lydian women, 378
 Lynus Point, Cornwall, 443
 Lysander, 38
 Lysimachus, 53

M.

MACAREUS, a King of Mitylene, 325
 Macedonians, 220
 Macleod, Rev. Dr. Norman, 366
Maclura aurantiaca (Osage orange), 64
 Macro Nici island, 401
 Maeander river, 213, 235, 239, 246,
 387, 390
Magnanerie, the (silkworm nursery),
 86-97, 108, 125, 150, 187
 ———, visit to a French, 186
 Magnesia under Sipylus, 51, 55, 59,
 219, 382
 ——— Thorax, 55, 236, 237
 Mahmud II., 341-344
 Mahomet Ali of Egypt, 341
 Makri Kivi, Stamboul, 319
 Malaga, 15, 417
 Malahacen mountain, 15, 417
 Malcozzi, M. Thales, 396
 Mal de mer, 4-7, 406
 Malea, Cape, 37, 402
 Male and female cocoons, 147
 Malta, arrival at, 22, 409; appearance
 of, 22, 409, 410; batteries, forts, and
 moorings, 22, 409; Church of St.
 John, 27; effects of sunrise over, 22;
 Governor's palace, 26; industries, 25;
 piquante female dress, 24, 25; plants
 in bloom, 26; swarms of priests, 25;
 Roman Catholic intolerance and arro-
 gance, 29; war ships, 31; to Smyrna,
 32-46
 Manes, King of Lydia, 377
 Manufacture of Turkey carpets, 100
 Marathonisi, gulf of, 34, 405
 Marble at Ephesus, discovery of, 361
 ———fronted houses, Smyrna, 226;
 Smyra, 39

Marble lakes and terraces, Hierapolis,
 218, 251, 330
 Marcopoli, M., of Smyrna, 396
 Marcus Aurelius, 365, 366
 Marine engagements, Gibraltar, 421;
 Tarifa, 427; Trafalgar, 430; St.
 Vincent, 432
 Mariolatry, 20
 Marmora, Sea of, allusion to, 210; cool
 breeze from, 305; depth of, 275;
 extent of, 274; Gallipoli on, 274, 319;
 islands in, 275, 288, 292, 316, 319;
 Rodosto on, 275, 319, 322
 Marochetti's Skutari memorial, 305
 Marseilles, 418
 Marsyas river, 239
 Mason, Captain George (Yatley), 65
 Massacre of the Janissaries, 343
 Matapan, Cape, 32-34, 402, 405
 ——— to Gibraltar, 406-424
 Mavroidhy, M. (Smyrna), 52, 141, 396
 Maxims from the Alcoran (Koran), 167
 Medes, 220
 Mediterranean, colour of, 22, 270; deep-
 est part of, 415; entrance to, 11; in
 the, 10-46, 269-271, 319-326, 397-
 428; sky tints, splendour of, 13, 15,
 270; steamer fares, 2; storm in, 406;
 volcanic region of, 18, 405, 406
 Medo-Persians, 379
 Mehemed Noury Bey, 172
 Mehemet II., 309
 Meles river, the Homeric, 52, 215, 337
 Melos island, 38
 Menai Strait, 442
 Mendicants of Smyrna, 216
 Menemen village, 54
 Merchandise seized by brigands, 350
 Meridian of Greenwich, 16
 Mermnadac, 377
 Mersinliqui, 337
 Mersey light-ships, 3
 Messageries Maritimes, 225
 Mes-sogis mountains, 248, 251, 255, 344,
 388
 Metropolis, ruins of, 231
 Microscope, use of, in sericulture, 199-
 208; counting corpuscles, 205; dis-
 tinguishing disease, 204; examina-
 tion by, 180-185, 189, 190, 193-197,
 202-208; inspecting for reproduction,
 206; instructions how to use, 201;
 instrument recommended, 94, 201;
 management of light, etc., 203;
 Pasteur's success with, 179; remarks
 on early history of the, 199
 Miletus island, 239
 Milford Haven (Pembrokeshire), 440
 Mills of Nymphio, 81; Pactolus, 380
 Minas Peak (Gulf of Smyrna), 43

Minorea island, 415
 Mist-trumpets on the Mersey, 3; at Cape Matapan, 33
 Mitylene (Lesbos) island, 214, 270, 325, 369
 Modu Bay (Bosphorus), 290
 Modena Maurogenia (of Negropont), 400
 Mohammed's banner, 317: prayer rug, 104
 Moldavia, loss of, to the Turks, 313
 Money, Turkish, 218
 Moors, 15, 416, 418, 427, 431
 Morea, 32, 405
 Morocco, 428
Morus alba (white mulberry), 62-74, 405; cultivation of the, 49, 67, 68, 70, 71, 72, 211; cuttings, 69; grafting, 67, 69; growing in hedges, 70; Chinese mulberry gardens, 72; layering, 70; leaf harvest in China, 72; preserving leaves, two methods, 73; pruning, 68, 71; seedlings, 69
 Mosques of Constantinople, 282, 281, 292
 Mother of the Sultan, 306
 Moths (silk), Bagdad breed exceptional in laying, 153; coupling, 151; examination of, 179-186, 206; issuing, 150; pioneer, 267
 Motril (Spain), 417
 Mounted guards, 82, 244
 Mounting to spin, silkworms, 265
 Mouth of the Tagus, 9
 Mudirs of Nymphio, 82, 395; Serai-keny, 242
 Mud-larks, 53
Muscardino disease, 197
 Music-room, Polytechnic, Smyrna, 171
 Museums of antiquities and costumes, Constantinople, 287
 Mustapha Bairaktar (Chief of the Janissaries), 341
 Mutilated sculpture, Hierapolis, 250
 Mutilation by brigands, 351
 Muzulia mountain (Algeria), 16
 Mycale, Cape (Asia Minor), 314
 Myopotamos (Cerigo island), 35
 Mycen, bootmakers of, 370
 Mysteries of Samothraki, 321

N.

NAN-TSEN (China), 66
 Napoleon Bonaparte and silk-farming, 175
 Narrows of the Bosphorus, 309
 Natural-coloured silk, 64
 ——— fountains, 81, 215, 250, 337

Nature of soil around Smyrna, 210
 Naval engagements, Gibraltar, 421; Tarifa, 427; Trafalgar, 430: St. Vincent, 432
 Neglect of modern languages, 295
 Negro, Cape, 17
 Negropont island, 398-400
 Nelson, Lord, 427, 430, 432
 Neptune's tribute, 4-7, 406
 Nevada, Sierra, 15, 416, 417
 New Zealand volcanic outbreak, 302, 387
 Niagara, 388
 Nightingale, Florence, 304
 Nikola, Port St., 401
 Niobe, the (Magnesia), 56, 58
 Nissa (Strabo's birthplace), 239
 "*Nix Manglure*" (nothing to eat), 23
 Noah or Manes, 377
 Nomads, Turkoman, 252
 Noury Bey, Mehemmed, 395
 Number of mulberry trees per acre, 65
 Nursery and its appliances, 86
 Nymphio, 77-85; acropolis and fortress of, 82; bad roads, 85; brigands of, 347; cherry orchards, 77; doctor of, 79; grain distribution at, 78; healthiness of, 80; mills and molars, 81; Mudir, 82; ride among the mountains, 82; Sesostris or Rameses II., believed to be the oldest bas-relief in the world, 79, 81

O.

OAK-RED silkworms, 64
 Obelisk at Constantinople, Egyptian, 284
 O'Blyn, George (The Goblin), 407
 Objects of interest in Malta, 22-31
 Ocean, wailing apostrophes to the, 6
 Octopus, torturing an, 41; fisheries of, 413; scene with an, 414
 ——— of the North, 293
 O'Driscoll's, 439
 Oglu family, Djirid, 353; Kiatib, 337; Tchapan, 312
 O'Hara's Tower, Gibraltar, 425
 Okhi, Mount, 399
 Old Age Island (Siphnos), 38
 Oldest sculptures in the world, 56, 58, 79, 81
 Old dame of Nymphio, 80
 Olives, 49, 54, 211, 238
 Oleanders, 253, 374
 Oliviri port, Mitylene island, 325
 Omurlu, 238
 Opinions about Gibraltar, 425

- Opium, 237, 238, 239; seized by brigands, 350
 Oporto, 434
 Oppidolo (Pantellaria), 19
 Oran, 15; pirates of, 416
 Orange-growing, 49, 169, 211
 Ordinary Maltese walking-attire, 24
 Oregon, ss., 3; loss of, 3
 Origin of the Bosphorus, probable, 301
 Oriental rascaldom, 59, 345
 Ormond, Duke of, and Vigo, 434
 Ornament, egg-and-dart, 250
 Ortakeuy (Bosphorus), 306
 Osage orange, food for silkworms, 64
 Osman Pasha, General, 355, 395
 Osmons, 55, 58, 219, 220, 342, 350, 353
 Osman, the sword of, 317
 Ottoman misrule, 384
 Ouessant (Ushant), 438
 Ouloodjak, 54
 Our party riding to Hierapolis, 244
 Oushak, 85; carpet-weaving at, 100
- P.
- PACTOLUS river, 379
 Pagus, Mount, Smyrna, 269, 366
 Palace of the Governor, Malta, 26
 Paleologho (an artist of Mitylene), 140
 Palmerston, Lord, 382
 Palos (associated with Columbus), 431
 Pambouk Kalesi (Hierapolis), 388
 Pantellaria island, 18, 411
 Panormus, harbour of, 360
 Parchment, origin of, 369
 Pardoning brigands, 353
 Parthenon at Athens, 360
 Passengers, fellow-, 3, 270, 397
 ———, employments of, 5, 11, 21
 Pasteur, Louis, 65, 86, 156, 179, 199, 257, 259, 267
 Pasquali family, Smyrna, 140, 396
 Pattern of Turkey carpets rarely change, 103
 Patients in hospitals admitted free, 136, 167
 Patersons of Smyrna, the, 396
 Paul's, St., London, 360; St. Paul, 374, 391
 Pauper's letter, a, 217
 Peach growing, 77, 211
 Peasant silkworm educators, 263
Pebrine, 86, 94, 107, 151, 157, 161, 176-188, 203-208
 Peccacho Voleta Mountain, Spain, 15
 Peculiarities of Oushak carpets, 101
 Pegasæan Lake, 232
 Pehlivan and his cut-throats, 351
 Peloponnesian war, 38, 403
 Pelopia (Thyatira), 373
 Pembroke and country, 440, 441
 Penal settlement, Roman, 400
 Pentedaktylos mountains, Greece, 32
 Pera (Constantinople), 279, 281, 288, 291, 297, 298, 304, 317
 Peregal island, 428
 Perplexities of sericulture, 264
 Period of an education, 259
 Perseus and the Gorgon's head, 38
 Persiaus, 220
 Permanganate of potash disinfectant, 119
 Pergamos, allusions to, 221, 330, 368-372
 ———, Eumenes II., king of, 369
 ———, history of, 369
 ———, library, and invention of parchment, 370
 ———, majestic ruins, 371
 ———, situation of, 369
 Petali gulf, 400
 Petrifying water of Hierapolis, 249, 251, 252
 Pherekydes (tutor to Pythagoras), 42
 Philadelphia (Allah Scheir), 220, 221, 240, 328
 ———, beauty of situation, 380
 ———, destroyed by an earthquake, 382
 ———, history of, 382
 ———, reaping machine, story of a, 385
 ———, silk-farming at, 384
 Philip of Macedon, 400
 Philippopoli, 321
 Philoxenus, cistern of (Constantinople), 282, 286
 Phocalo, 344
 Phœnicians, 34, 415, 418, 430
 Porphyry caves, Cerigo, 35
 Phrygian carpets, 98
 Picking and shredding mulberry leaves, 262
 "Pied Piper of Hamelin," 366
 Pierced paper trays, 90, 92
 Pillars of Hercules, 11, 418, 421, 426, 428
 Pink apes of Gibraltar, 428
 Pink terraces of Rotomahana, 302, 387
 Pioneers in sericulture, 118, 127, 265, 266, 267
 Pirates, 416, 439
 Pittacus of Mitylene, 325
 Pixodorus, 361
 Plagues, silkworm, 86

Plane tree at Therapia, historical, 314
 Planting mulberries in France, 65
 Platys, M. Jean D., Smyrna, 396
 Plinherbah Point, Malta, 22
 Plucking mulberry leaves, 67
 Political remarks, 11, 323
 Pollastro (Galita Islands), 18, 413
 Pollard mulberries in Turkestan, 68
 Polycarp the martyr, 366
 Polyglot ripple of speech, 76
 Polytechnic, Smyrna, 169
 Pomegranates, 236, 253
 Pontoon ferry over the Hermus, 51
 Pope's Homer on the "Niobe," 57
 Popish processions in Malta, 23
 Poppy growing, 237
 Population of Asia Minor, 133
 Porte, the, 351
 Portuguese coast, 8, 432
 Posidon and Amphitrite in Syra, 42
 Position of the Sesostriis rock carving, 84
 Powdering and preserving mulberry leaves, 73
 Prayer rug, story about a, 104
 Prayers for King George, Greece, 132
 Precautions in gathering mulberry leaves, 67
 ——— during education, 116-129
 Preliminaries of the silk harvest, 47
 Premature incubations, 78
 Preparing for the silk season, 109
 Preserving graine (silkworms' eggs), 154
 ——— mulberry leaves, 73
 Prete, Matthew, Malta, 28
 Priene, (Ægean Sea,) 239
 Pride of the Greeks in their institutions, 141
 Princes islands (Sea of Marmora), 275, 316
 Prince of Wales, 288, 304
 Prion, Mount, Ephesus, 360, 361
 Private caravansary, 240
 Procurator-General of Aïdin, 354, 355
 Products of Philadelphia, 381
 Promontorium Nerium, 435
 Propontia, 301
 Pruning the mulberry, 68, 71
 Psara islands, 398
 Ptolemy, 370, 371
 Publi, M., Smyrna, 52, 396
 Purity essential in sericulture, 110
 Purser, Mr., Smyrna and Aïdin railway, 331
 Pushing insurance man, the, 224
 Pygmalion, 415
 Pythia, 389
 Pyxara, Mount, 399

Q.

QUANTITY of food eaten by silkworms, 66, 112, 113, 117-126
 Quartermaster's opinions, 14, 19
 Quarantine harbour, Malta, 22, 30
 ——— station, Smyrna, 169
 Queen Adelaide at Malta, 29
 Quercus Ægilops, 239

R.

RABBI, a, 333
 Railways, Smyrna and Aïdin, 230
 ——— Boujah, 331
 ——— Bournabat, 135
 137, 332
 ——— Cassaba, 51, 101,
 Rainfall at Scraikeuy, 242
 Rameses II. or Sesostriis, 79, 84
 Ramizan, 306
 Ransom paid brigands, 346-353
 Ras-el-Amish (Algeria), 16
 Reaping machine at Philadelphia, 385
 Reasons for rejecting double cocoons, 148
 Reeling silk, 96, 97
 Reformer, a Turkish, 341
 Regalia of the Sultan, 317
 Regulation of the *magnanerie*, 86
 Relics in palace, Malta, 27
 Removal of litter, 91; eggs, 153
 Reproduction, mysteries of, 147-164
 Reservoirs, 250, 286, 313, 335
 Residence among the Chinese, Fortune's, 66
 Result of a silk season at Bournabat, 267
 Retarding incubation, 66, 78
 Revival of Smyrna silk trade, 258
 Rhoads (Laodicea), 390
 Rhodes island, 214, 325
 Rhymes, 4, 7, 13, 23, 55, 57, 169, 301, 311, 403, 407, 434, 435, 444
 Rhymster, a groaning, 7; a revived, 13, 14
 Riccasch, Fort, Malta, 22
 Richard Cœur de Lion, 53, 314, 331
 Ricketty houses and boats, 225
 Ride among the Nymphio mountains, a, 83
 Righeb Pacha, 342
 Road making, 213, 220
 Roberts' College (Constantinople), 298, 308, 309
 Rocca, Cape, 8
 Rodosto town, 275, 319, 322

Rolande, M. (Switzerland), 260
 Roman penal settlement, 400
 — Catholic excuse for Mariolatry, 20
 Romanidly, Dr., 396
 Romeli, battle of, 312
 Roqueta mountains, 417
 Rotomahana, pink terraces of, 302, 387
 Roumelia, 318-324
 Roumili light (Bosphorus), 300
 Ruimet de Talles, 64
 Ruin of Laodicea, 256, 391
 Rumili Hissar, 308-311, 316
 Russian fleet, 303; Czar, 310; Eye, 342; Squadron, 312

S.

SABBATH, preparation for, 16
 Sadyattes, King of Lydia, 378
 Samos, gulf of, 360
 Samothraki island, 320-322
 Sanderli, gulf of, 369
 Sanjak Kalissi (Smyrna), 43, 269, 331
 Sanjak-sherif (Mohammed's banner, 317
 San Stefano (Constantinople), 319
 Santiago fort (Algeciras), 427
 Sappho, 325
 Saraikey village, 348
 Sardis, 61, 219, 221, 329, 375-380; Alyattis, King of, 378; Croesus, the wealthy, 378; dice, first invented at, 379; fall and destruction of, 380; gold and silver first coined at, 379; history of, 377; kings of, 378-380; Lake of Gyges, 378; Lydian women, 378; Pactolus river, 379; Seven Wise Men of Greece, 379; splendour of, 379; tomb of Alyattis, 378
 Scenes of interest: at Athens, 145; Archipelago, 319, 325, 397-401; at the Apocalyptic Church sites, 251-256, 358-393; Bay of Biscay, 6-8, 435-437; the Bosphorus, 279, 300-315; at Bournabat, 47, 75, 86-97, 107-131, 147-164, 174-208, 257-268; with brigands, &c., 340-356; in China at mulberry harvest, 72; connected with a prayer-rug, 104; at Constantinople, 280-293, 316-319; on the Dardanelles, 271-274, 319; at Dédé Agatch, Roumelia, 320-324; at Gibraltar and straits, 10, 11, 14, 419-424; at grain distribution, 49, 60, 75, 78, 80; in the Gulf and Bay of Smyrna, 43, 269, 326; at Magnesia under Sipylus, 55, 219, 382; under Thorax, 236, 237; Malta, 21-31, 409-411; Marmora, sea of,

274-276, 319, 323; Mediterranean, 13-46, 269-271, 319-326, 397-429; Nymphio, 77-85; on the railways, 51, 101, 135, 137, 230, 331, 332; Roumelia, 321-324; Smyrna, 46, 52, 104-106, 132-146, 165-173, 209-229, 327-339, 395-396; at Syra (a Greek island), 39-43; with octopodia, 41, 414; at Oushak, 102-104
 Saumarez, Admiral, 427
 Saussure's hygrometer, 89
Sauve qui peut, 366
 Schliemann, Dr., 394
 School attendance at Syra, 41
 Schools of Smyrna, 139, 172; Thyatira, 376
 Scilly Islands, 438
 Scio island and Greek maiden, 144
 Scipio, 374, 415
 Sea-sickness, 5-7, 406-409
 Seedlings, wild mulberry, 69
 Segment of a corpusculous worm, 185
 Seizanis, M., Miltiades D., 396
 Selamluk, ceremony of the, 306
 Selecting cocoons for reproduction, 147, 266
 Selemiyeh barracks (Skutari), 291
 Selenus river, 369
 Seleucus, 373
 Sepia, 41
 Septa or Septum (Ceuta), 428
 Seraglio enclosure, 289; Point, 290, 319
 Seraikey village, 230, 237, 240, 242, 256, 330, 386
 Seriphino, Father, 138, 396
 Seriphos and Siphno islands, 38
 Serpho Poulo island, 38
 Servia, loss of, to Turkey, 343
 Service, Divine, at sea, 20, 319
 Sesostris (Rameses II.), 79, 220
 Seven Towers, the (Constantinople), 286
 Seven Wise Men of Greece, 325
 Severn river, 440
 Sericulture, airiness and purity essential in, 87
 Anecdote of, at Philadelphia, 384
 Bournabat silk-harvest of 1885, 257-268
 Chinese, 66, 72; French and Italian, 111, 113
 Debernardi on, 113; Fortune on, 66; Griffitt on, 47-97, 107-131, 147-164, 174-208, and 257-268; Mason on, 65; Miss Bird on, 114; Pasteur on, 65, 86, 156, 179, 199, 257, 259, 267; Robin on, 64; Scheuyler on, 68

- Diseases of the silkworm, 65, 73, 86, 174-198
 Educating chambers, 264: frames, 93; stands, 127
 Educating silkworms, 107-131
 Examining cocoons for sex, 119
Grain distribution, 75-85
 Griffith's, Mr., system in detail, 115-131
 Incubation, 115
 Issue of the moths, 151; worms, 115
 Microscopic examination, 185, 201
 Moulting, 117-125
 Mounting to spin, worms, 126, 265
 Mulberry, all about the, 62-74
 Mysteries of reproduction, 147-164
 Nursery and appliances, 86-97
 Pasteur's views, summary of, 192
 Preliminaries of the silk harvest, 47-61
 Silk harvests in France, 175
 Silk-spinners, 186; silk di ram, 176
 Shredding leaves for young silks, 68, 262
 Soil suitable for the mulberry, 66
 Space allowed silkworms at different ages, 93, 110
 Spread of silkworm diseases, 176
 Steaming cocoons, 94, 131, 266
 Stove for heating the *magnanerie*, best, 87
 Stringing cocoons for reproduction, 149
 Stumping mulberry trees, 67, 68
 Sulphur fumigation of the nursery, 109
 Superstition associated with, 186, 187
 Use of the microscope in, 199-208
 Varieties of food given in, 64, 68
 Shovel, Sir Claude-Ley, 438
 Shurshall, Port (Algeria), 16
 Sicily, 20
 Sick man, the, 322
 Sickness near Dêlé Agatch, 324
 Sieges of Gibraltar, 421
 Sierra Nevada, 15, 417
 Si-Ling-Shi of China, 66
 Silk districts of China, 72
 Silk of Hoo-Chow, superior, 67
 Silk trade of Smyrna, 108
 Siluræ Insulæ (Scilly Isle-), 438
 Silver gates at St. John's, Malta, stolen, 27
 Silver exporting monopoly, a, 337
 Simonides, birthplace of, 401
 Sirocco, tail end of a, 16
 Sites of the Apocalyptic churches, 53, 358-394
 Skerry Rocks, 4
 Skutari, 288, 289, 291, 296, 301, 316
 Skids on railway carriage wheels, 236
 Smith, Rev. Barnaby, 396
 Smoking, singular punishment for, 333
 Smyrna, Acropolis of, 269; agriculture around, 209-221; amusing trials in, 227, 228; ancient Smyrna, 52; and Aidin railway, 230, 330, 376; aqueduct near, 331; badly-paved streets, 328; barometer, the, 54; Bay and Gulf of, 43, 172, 215, 270, 326, 331; clubs, 47; to Constantinople, 269; Deaconesses' institution, 297, 339; dancing dervishes, 328, 329, 365; difficulties of getting about, 367; to Cape Matapan, 395; and Cassaba Railway, 328, 337; earthquakes, etc., 365; to Ephesus, 375; fire-raisers of, 225; first bishop of, 366; fishermen and silk, 260; free fight at the Konak, 354; Greek institutions of, 132-146; harbour steamers, 331; history of, 364; ludicrous scene with a dervish, 365; mendicants, 216; mosques and churches, 328; Polycarp martyred at, 366; products of, 211; Macleod, Rev. Dr. Norman, in, 366; soil, 210; statistics of, 213, 327; Three Turkish institutions, 165 to 173; villages around, 331
 Solon, 379
 Spartan women, 403
 Spartel, Cape, 10, 429
 Spinning yarn for Turkey carpets, 102
 Splendour of Mediterranean sky-tints, 13, 15, 270, 436
 Sponge fisheries, 413
 Sponti, M., of Smyrna, 396
 Springs of Halka Bounar, 215, 337; Hierapolis, 249; Nymphio, 81
 Stack Rocks, 441, 443
 Stalactite grottoes (Cerigo), 35
 Stamboul, 278, 279, 291, 317, 319
 Stanhope, Admiral, 434
 Statue de Cybele (Magnesia), 56-58
 St. George's Channel, 439
 Strabo, 52, 231, 239, 373
 Strada Santa Lucia (Malta), 23
 Stream of Forgetfulness, 237
 Streets of stairs (Malta), 23
 St. Sophia mosque, 279, 282, 317
 St. Vincent, Cape, 9, 432
 Successful peasants, 219
 Suidas on Samothraki, 320
 Suleyman, mosque of, 303

Sultana Valideh, mosque of, 292, 303
 Sultan going to prayer, 306
 Sultan Hissar, 239
 Sultan's murder, scene of a, 304, 305
 Sumptuous sky-tints (Malta), 21
 Suppression of the Janissaries, 343
 Sweet Waters of Europe (Golden Horn), 281, 291, 317
 Syrens, fog-horns, etc., 3, 33, 437
 Syria island, 39-42

T.

TABULATED silk statement, 176
 Tacitus, 382
 Tagus, the, 9, 433
 Tail end of a sirocco, 16
 Tailless apes, 428
 Tailor work at Smyrna, Polytechnic, 171
 Tale of Blood, 398
 Talmud, the, 333
 Tamerlane, 380
 Tanger light, 10
 Tanners of the Selinus, 370
 Tantalus, 52; lake of, 53, 54, 335
 Tapestry, St. John's, Malta, 28
 Taurera, Mount, volcanic outbreak, 302, 387
 Tardily-spun cocoons, 148
 Tarifa light, 10
 Taxation in Asia Minor, 220
 Tchapin Oglu, 342
 Temperature in sericulture, 88, 109, 115, 189, 259, 263
 ——— during first age, 117; second age, 119; third age, 121; fourth age, 122; fifth age, 126; formation of the cocoon, 129; under Pasteur's "Cellular System," 156; at moulting periods, 192; in connection with the disease *flacherie*, 87, 192; to be regulated according to desired result, 112, 114, 259
 Temple of Diana (Ephesus), 330
 Tenedos island, 271
 Tenez (Algeria), 16
 Tennessee, sericulture in, 64
 Terms of egg-distributions, 258
 Terpander of Mitylene, 325
 Terraces of Hierapolis, 249, 251, 253
 Teste La, tower of (Almeria Bay), 416
 Tests for silkworm diseases, 195-197
 Tewfik Bey, 354, 395
 Thaso island, 324
 Theatre, Hierapolis, 250
 Themistocles, 55, 237

Theologheithis, Michil, of Nymphio, 79, 396
 Theophanes of Mitylene, 325
 Theos, Antiochus, 255
 Therapia (Bosphorus), 297, 310, 313-316
 Therma island, 400, 402
 Thermometer and hygrometer, 89 115
 Thessaly, 344
 Thingherbab battery, Malta, 22
 Third age of silkworm specially interesting, 121
 Thirst for knowledge among Greeks, 41, 146
 Thracian Chersonesus, 274
 Three reasons for rejecting double cocoons, 148
 Three scourges of the Levant, 222
 Three Turkish institutions, 165
 Thyatira, 221, 330, 373-376; associated with Seleucus, 373; and Lydia, a "seller of purple," 374; beginning of, 373; history of, 373; itinerary, 375, 376; madder-fields of, 376; modern town, Ak-Hissar, 375; to Sardis, 375; scene of great military events, 374; schools of, 376; site unknown for ages, 373; situation, 373
 Tiberius (Roman emperor), 55, 380
 Tigne fort, Malta, 30
 Timarete (first known lady painter), 361
 Timolus, Mount, 61, 213, 219, 377, 381, 383
 Timothy, grave of, 362
 Tithe charges in Asia Minor, 220
 Tobacco and Jewish law, 333
 Tobacco Regie, Constantinople, 396
 "Toilers of the Sea," Hugo's, 414
 Told in the twilight, 144
 Tombs, references to, Abercrombie's, Malta, 30; Alyattis, Sardis, 378; Homer's, near Smyrna, 53, 215; Virgin Mary's, Ephesus, 362; Polycarp's, Smyrna, 366; St. John's, Ephesus, 362; Timothy's, Ephesus, 362
 Topkhane (Constantinople,) 279, 288, 291, 304
 Torinana, Cape, 435
 Torrox (Spain), 417
 Torturing an octopus, 41; an octopus torturing a man, 414
 Tradition about Scilly Islands, 439
 Trafalgar, Cape, and sea fight, 430
 Training mulberry trees, 67
 Tralles (Aidin), 238
 Trebizond, 210
 Tremuso, Mount, 435

Tresforcas, Cape, 415
 Tributes to Mr. Gladstone, 11, 141; to
 L. Pasteur, 86
 Trimetaria Cumbustia (Laodicea), 255
 Troad, the, 271, 287, 320, 391
 Trojan trinkets, 287, 391
 Troy, Helen of, 401
 Truckling to popery in Malta, 29
 Trumpet flower, 64
 Tunis, gulf and town, 17, 112, 413
 Turbali, 231, 232
 Turbulence of Bay of Biscay, 4, 8, 10,
 406, 435, 436
 Turkey carpets, 98-186
 Turkish antiquities, 287; dragonman,
 222, 243; educational facilities, 165;
 girls at a German school, 298; hos-
 pitality, 77, 166, 384; kindness to
 animals, children, servants, and
 strangers, 166; loss through silk-
 worm maladies, 107; military escort,
 82; money and land-measure, 218
 Turkoman nomads, 54, 252, 313, 314
 Typha, the monster, 383
 Tyre, Belus, King of, 415

U.

UNEQUAL issue of sexes, how arranged,
 152
 Unfortunate Israelite, an, 334
 Unhealthy localities, 54, 233, 321, 338
 Unsectarian system of Greek educa-
 tion, 146
 Uproar of the elements, 6
 Use of ice in hindering incubation, 66
 — pierced paper tray, 91
 — the microscope in sericulture,
 199-208
 Ushant to Cape Villano, 8, 433
 Uşkudar (Skutari), 301

V.

VALENS aqueducts and fountains, 286
 Valetta (Malta), 22, 412
 Valette, La, 30
 Valonia oak forests, 51, 100, 234, 324
 Value of a signature, 81
 — silk crop of 1853 to France,
 177
 — land, 217, 218
 Vandalism of tourists, 57
 Vandals, 428
 Vapour, noxious, against sericulture,
 87
 Varieties of mulberries, 62, 67, 68

Variety of speech and costume, 76
 Vatika Bay, 404
 Veiled woman, statue of the Niobe, a,
 56
 Venerable Christian, a, 135
 Venetians, 400
 Ventilation in the *magnanerie*, 87
 Venus, and Cerigo island, 31
 — de Milo, 38
 — and the women of Cos, 401
 Verde islet, 427
 Veleta mountain, 15, 417
 Vestiges of temples in Syra island,
 42
 Vettoriosa rocks (Malta), 22
 Vibriones, 189, 192, 193
 Victor Hugo, 414
 Views at Hierapolis, 250
 View from Genoe-e Tower (Constanti-
 nople), 288
 Vigo Bay and town, 431
 Villainous saltpetre, 132
 Vilayet of Aidin, Greeks in the, 133
 Villano, Cape, 135
 Vines of Eschol, 19
 Vine-fed silkworms, 64
 Vineyard planting and cultivation, 49,
 211, 218, 239
 Visit to Greek Church dignitaries,
 Smyrna, 135
 — Hospital, Smyrna, 138
 — Turkish Hospital, Smyrna,
 166
 — French *magnanerie*, 186
 Volcanic convulsions, 365-387
 — country at Aidin, 238
 — region of the Mediterranean,
 18
 Volcano in Melos Island, an active, 38
 — on Mount Guardia, a new, 18
 Voracity of hybrid silkworms, 261
 Vourla village, 217, 365
 Voyaging, pleasures of, 6

W.

WADE, Mr., Smyrna, 396
 Wages, carpet-weavers, 103
 —, field labourers, 217
 —, in the interior, 217
 —, silkworm tenders, 217
 —, Vourla workers, 217
 Wallachia, loss of, to Turkey, 343
 War Ministry, Constantinople, 290, 291
 War ships, Golden Horn, 316; Malta,
 31
 Water in Aidin, 215; petrifying at
 Hierapolis, 249, 251
 Weather speculations, 48

- Weaving carpets, an ancient industry, 98
 Weapons in Governor's palace, Malta, 27
 Weights of cocoons and worms, 108, 262, 263
 Wellington, 431
 Welsh church, Metropolitan of, 441
 Western Goths, 428
 Westminster Abbey, 438
 Wexford coast, 441
 What are *pebrine* and *flacherie*? 179
 Where mulberries are grown in China, 67
 Whitewash *magnanerie* in spring, 109
 Whining mendicancy at Therapia, 314
 White terraces of Hierapolis, 246-252, 387-389
 Wiggins the quartermaster, 14, 19
 Wild mulberry, and how propagated, 68, 69, 70
 — night in Mediterranean, a, 407
 Wilderness of monkeys, a, 428
 Windings of the river Meander, 235
 Windmills, 54
 Wine fountain on Andros Island, 398
 Winter resort, Malaga, a, 417
 Wolves troublesome among the hills, 221
 Wolff, Sir H. D., 311
 Women of Cos changed into cows, 401
 Woods, Mr., excavating work at Ephesus, 231
 Working Turkey carpets, method of, 103
 Worm suffering from *pebrine*, 180
 — dead of *flacherie*, 184
 Worms, pioneer, 265, 266, 267
 Words of command on Bosphorus, 303
 Work by Pasteur on silkworms' diseases, 86
 Wreck of the "Sidon," 2; "Oregon," 3
 Writers on the Apocalyptic churches, 358
- X.
- Xerxes, 380, 404
- Y.
- Yarn for Turkey carpets, 102
 Yellow race of silkworms, 260
 Yields of mulberry leaves, 65
 — silkworms' eggs, 152
 Young corpuscles developing, 181
 Yourouk Osman, 353
 Yousuf Zia Effendi, 169, 395
 Yuzgat town, 350
- Z.
- Zen Channel, 400; Island, 400, 401
 Ziebecs, 344
 Zembra and Zembretta islands, 412, 413
 Zinc incubator, 88; cocoon steamer, 94; and cabinet for eggs, 154
 Zulis, ancient, 401



V2

